AUGUST | 1956

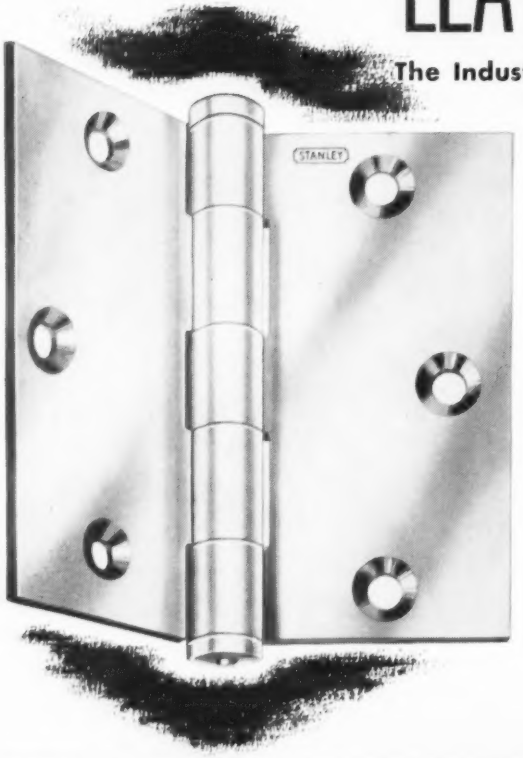
# products finishing

## FINISHES ON METAL PRODUCTS


| | |
|---|---|
| Table of Contents | Page 5 |
| Finishing Metal Furniture | Page 16 |
| Automated Paint Finishing | Page 36 |
| Rinse Control in Phosphate Coating | Page 42 |
| Automatic Plating Methods | Page 56 |
| Rigid P.V.C. Resists Acid Fumes | Page 78 |
| What's New? | Page 84 |

**STANLEY** NO. 241 HINGES *Standard of the World*

# *finished with* LEA LIQUABRADE




**The Industry Standard for liquid buffing and polishing compositions**

Occasionally a product becomes the "standard" of its type because of unvarying excellence in manufacture and use. Such a product is the Stanley No. 241 Hinge. Almost since it was first introduced in 1879, this has been the *Standard of the World* for plain bearing hinges.

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For more data circle **135** on Reader Service Card

## PRODUCTS FINISHING — AUGUST, 1956

| | | | | | | | | | | | | 2nd Cover | | | 3rd Cover | | | 4th Cover | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 29 | 43 | 57 | 71 | 85 | 99 | 113 | 127 | 141 | 155 | | | | | | | | |
| 2 | 16 | 30 | 44 | 58 | 72 | 86 | 100 | 114 | 128 | 142 | 156 | 169 | 182 | 195 | 208 | 221 | 234 | 247 | 260 |
| 3 | 17 | 31 | 45 | 59 | 73 | 87 | 101 | 115 | 129 | 143 | 157 | 170 | 183 | 196 | 209 | 222 | 235 | 248 | 261 |
| 4 | 18 | 32 | 46 | 60 | 74 | 88 | 102 | 116 | 130 | 144 | 158 | 171 | 184 | 197 | 210 | 223 | 236 | 249 | 262 |
| 5 | 19 | 33 | 47 | 61 | 75 | 89 | 103 | 117 | 131 | 145 | 159 | 172 | 185 | 198 | 211 | 224 | 237 | 250 | 263 |
| 6 | 20 | 34 | 48 | 62 | 76 | 90 | 104 | 118 | 132 | 146 | 160 | 173 | 186 | 199 | 212 | 225 | 238 | 251 | 264 |
| 7 | 21 | 35 | 49 | 63 | 77 | 91 | 105 | 119 | 133 | 147 | 161 | 174 | 187 | 200 | 213 | 226 | 239 | 252 | 265 |
| 8 | 22 | 36 | 50 | 64 | 78 | 92 | 106 | 120 | 134 | 148 | 162 | 175 | 188 | 201 | 214 | 227 | 240 | 253 | 266 |
| 9 | 23 | 37 | 51 | 65 | 79 | 93 | 107 | 121 | 135 | 149 | 163 | 176 | 189 | 202 | 215 | 228 | 241 | 254 | 267 |
| 10 | 24 | 38 | 52 | 66 | 80 | 94 | 108 | 122 | 136 | 150 | 164 | 177 | 190 | 203 | 216 | 229 | 242 | 255 | 268 |
| 11 | 25 | 39 | 53 | 67 | 81 | 95 | 109 | 123 | 137 | 151 | 165 | 178 | 191 | 204 | 217 | 230 | 243 | 256 | 269 |
| 12 | 26 | 40 | 54 | 68 | 82 | 96 | 110 | 124 | 138 | 152 | 166 | 179 | 192 | 205 | 218 | 231 | 244 | 257 | 270 |
| 13 | 27 | 41 | 55 | 69 | 83 | 97 | 111 | 125 | 139 | 153 | 167 | 180 | 193 | 206 | 219 | 232 | 245 | 258 | 271 |
| 14 | 28 | 42 | 56 | 70 | 84 | 98 | 112 | 126 | 140 | 154 | 168 | 181 | 194 | 207 | 220 | 233 | 246 | 259 | 272 |

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| 5 | 19 | 33 | 47 | 61 | 75 | 89 | 103 | 117 | 131 | 145 | 159 | 172 | 185 | 198 | 211 | 224 | 237 | 250 | 263 |
| 6 | 20 | 34 | 48 | 62 | 76 | 90 | 104 | 118 | 132 | 146 | 160 | 173 | 186 | 199 | 212 | 225 | 238 | 251 | 264 |
| 7 | 21 | 35 | 49 | 63 | 77 | 91 | 105 | 119 | 133 | 147 | 161 | 174 | 187 | 200 | 213 | 226 | 239 | 252 | 265 |
| 8 | 22 | 36 | 50 | 64 | 78 | 92 | 106 | 120 | 134 | 148 | 162 | 175 | 188 | 201 | 214 | 227 | 240 | 253 | 266 |
| 9 | 23 | 37 | 51 | 65 | 79 | 93 | 107 | 121 | 135 | 149 | 163 | 176 | 189 | 202 | 215 | 228 | 241 | 254 | 267 |
| 10 | 24 | 38 | 52 | 66 | 80 | 94 | 108 | 122 | 136 | 150 | 164 | 177 | 190 | 203 | 216 | 229 | 242 | 255 | 268 |
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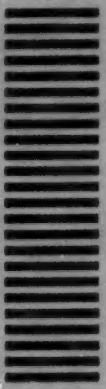

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## HAVE YOU TRIED THIS EXTRAORDINARY CLEANER?

Oakite Rustripper removes rust and heat scale in the same operation that removes oil. It avoids hydrogen embrittlement, damage to machined surfaces and other disadvantages of acid pickling.

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How can cleaning costs be reduced 33% while cleaning quality is being improved? *See pages 7 and 8 of booklet.*

What are four easy ways to improve the average rinse tank? *See page 10.*

What causes hydrogen embrittlement during electrocleaning? What is the remedy? *See pages 15 and 16.*

### Do you need a brass cleaner that gives better protection against tarnishing?

Oakite has a new brass cleaner that provides scientific protection against the oxygen that tarnishes brass and other copper alloys during the application of reverse current.

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- ☐ What's NEW for electrocleaning brass and other copper alloys

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Look what Ransburg Electrostatic Spray painting is doing in this eastern job shop, the Del-Val Finishers Division of J. W. Rex Company, Lansdale, Pa.

As a job shop, Del-Val handles a variety of work each month, painting hundreds of thousands of pieces and parts of various sizes and shapes.

The versatility and flexibility of Ransburg Electro-Spray makes it ideal for their varied painting requirements. Here's a typical example. Del-Val recently completed a contract for a Philadelphia manufacturer of barbecue trays with these results:

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**50%** SAVINGS IN LABOR and OVERHEAD

**66%** CUT IN PAINT COSTS, with improved, more uniform, and higher quality finish.

The job—flat sheet steel, 11" x 19"—enamel coated to withstand a 90 bend with sharp radius. Full coat one side; mist coat other

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| Output, 375 panels per hour with 3 men | | Output, 250 panels per hour with 4 men | |
| | per panel | | per panel |
| Labor and overhead | .06 | Labor and overhead | .12 |
| Paint & lease cost | .017 | Paint cost | .044 |
| TOTAL COST | .077 | TOTAL COST | .164 |

Want to know what Ransburg Electro-Spray can do for you in YOUR finishing department? Write for our new No. 2 Process brochure. It tells the WHAT & HOW of electrostatic spray painting, and with numerous production-line examples, shows how other manufacturers are cutting finishing costs... increasing production, and improving the quality of their work with Ransburg equipment. Too, we have available now a new movie, "The Big Attraction," a 27-minute sound and color film on electrostatic spray painting.

*Ransburg* ELECTRO-COATING CORP.
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# products finishing

*Vol. 20 No. 11 August, 1956*

## FEATURES IN THIS ISSUE:

15 Trends in Finishing and Finishing Methods • *Editorial*

16 Finishing Cosco Metal Furniture • *By Gerard H. Poll, Jr., Associate Editor*

30 Historical Notes on Enameling Iron for Porcelain Enamel • *By Dr. J. J. Canfield*

36 Twin Type Automatic Finishing System is Flexible and Efficient

42 The Value of Rinse Control in Phosphate Coating Processes • *By Richard B. Stribley*

56 Spotlighting Finishing Progress • *By Dr. C. Fred Gurnham*

—Automation in the Plating Industry

68 Practical Applications of Modern Products

68 —Uses for Rigid Polyvinyl Chloride in Finishing Shops • *By Herman Starbuck*

78 —Hot Spray Improves Quality, Painting Speed • *By Frank Williams*

80 —Radiant Oven Speeds Paint Baking

6 Advertising Representatives

## DEPARTMENTS:

50 Finishing Clinic

84 New Equipment, Materials, Processes

136 News of the Industry

151 Meetings of Interest to Finishers

152 Product Literature

156 Opportunity Section *(Classified Adv.)*

158 The Finishing Touch

160 August Advertisers' Index

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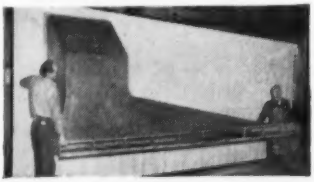
HAVEG News

Wherever CORROSION RESISTANCE is a Factor

## HAVEG FUME SYSTEMS RESIST WIDE RANGE OF CORROSIVE ATMOSPHERES



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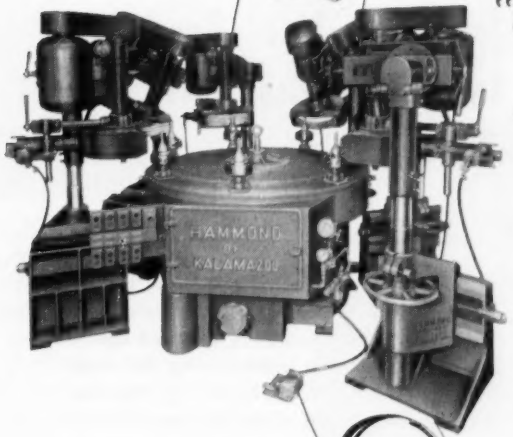


The experience gained in over 70 years of machinery building has provided us with a big bank of "Know How."

This knowledge is drawn upon and added to every day. Our business is to share it with you to bring down high finishing costs. Many users of Hammond Automatics have found more efficient means of finishing by drawing on our bank of "Know How."

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**SEND SAMPLES and we will show you how much you can speed up production and cut costs.**

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Reg. Trade Mark

**THE NAME THAT STANDS OUT IN BLACK OXIDE FINISHES**

**Type A Blackening Process For Steel**

## Improves Your Product
## Increases Production
## Cuts Costs

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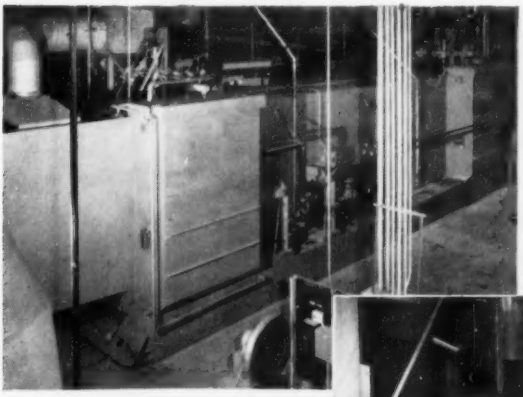
# Ransohoff COMPLETE FINISHING SYSTEM

## Transforms Uncleaned Metal to Smart Baked Finish in 50 Minutes

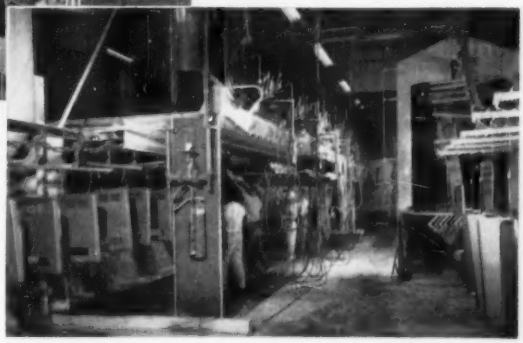
**Ransohoff designed, supplied, and installed the complete system. Double tunnel complete conveyorized cleaning, phosphate coating and finishing system handles varied size and shape metal parts for leading West Coast producer of electrical appliances.**



**This Ransohoff System includes:**

1. Washing
2. Rinsing
3. Phosphate coating
4. Rinsing
5. Chromic rinsing
6. Drying
7. Flocoat & Spray Painting
8. Baking

Ransohoff Cascade Heater* in foreground at left. Newest and most efficient method of solution heating.



Work requiring spray finish is conveyed through booths shown at left end of this photo. Work requiring flocoat painting travels through unit at right. Both lines converge as work travels through a 450 degree final bake oven.

***This and thousands of other engineered-for-the-job installations prove that leaders of America's metal working industry find it pays to call upon***

### RANSOHOFF INGENUITY

***For speeding up and cutting costs of metal cleaning and finishing—with better methods and automatic equipment.***

**The Ransohoff Cascade Heater is also available separately, for applications where quick, low cost solution heating is desired. For complete details, write: Ransohoff, Inc., 610 North Fifth Street, Hamilton, Ohio.**

***Pat. Pending**

**Ransohoff** *An old name...the newest ideas*

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# For greater corrosion resistance at high temperatures . . .

After air-drying, one end of each of these panels was heated to 600° F and subjected to 100 hours of salt spray.

▲ Finished with alkyd enamel

▲ Finished with silicone-based enamel

## use Silicone Based Paints...

Here's visual proof of the extra measure of corrosion resistance you can expect from finishes based on Dow Corning *silicone resins*. Additional advantages: better retention of color and gloss at high temperatures; superior weather and mar resistance . . . excellent leveling and anti-flooding properties. Give *your* product the extra sales appeal and protection of a *Dow Corning silicone* based finish.

### Want a hammer effect?

Now you can get it easily and economically in most types of resins merely by specifying the addition of a special Dow Corning silicone fluid to your metallic finish! Write for details.

### New fact-filled brochure available!

Get complete data on silicone finishes—plus list of silicone paint formulators. Write for your personal copy today.

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**Midland, Michigan**

DOW CORNING SILICONES — first in silicones

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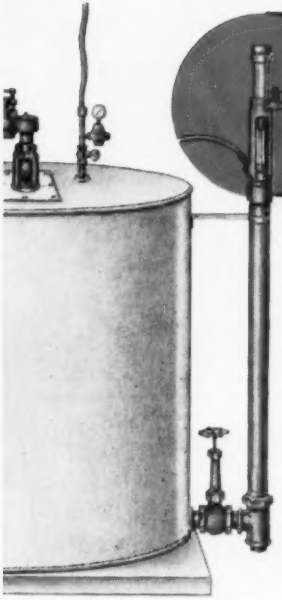
*Since June 1954

## the NEW air-operated BALCRANK® Jet Power PUMPS



**for paint have been working constantly on a high production schedule thru 2 shifts (16 hours) and occasionally a third shift . . . in one of the largest automotive plants in the U. S. . . . pumping heavy abrasive red-oxide primer . . .**

***No other* pumping equipment on this installation *survived more than 2-3 weeks.***

### THE BALCRANK PUMP

for Paint—operating here with a simple standpipe assembly—may be installed on any standard 2" bung opening or coupling—or open end drums.

For over 50 years—Balcrank has served the Machine Tool and Automotive industries, specializing in pressure-pumping of oils, greases, viscous and abrasive materials.

Now—this *NEW* air-operated Jet Power Pump for PAINT is available for immediate shipment to you.

Here's the NEW CATALOG

We'll send you a FREE copy.

**Balcrank pumps have already established unique performance records. Our Engineering Staff can adapt this experience to your needs. Address your inquiries to Dept. 28**

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PUMPS

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**42 Disney Street**

**Cincinnati 9, Ohio**

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50 YEARS of SERVICE

For more data circle 145 on Reader Service Card

# ACME Automatics

## FOR HIGH PRODUCTION at LOW COST on

**POLISHING and BUFFING • DE-BURRING**
**WIRE BRUSHING and MICRO-FINISHING**

• Proved performance and dependability in industry for half a century

**RECOMMENDATIONS and QUOTATIONS**

• *We will be pleased to receive blue prints or preferably finished and unfinished samples of the part you contemplate finishing together with detailed information on present finishing operation and production requirements. On receipt of samples and data we will offer recommendations and quotations.*

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SPECIAL MACHINERY — AUTOMATIC BUFFING MACHINES

**ACME Manufacturing Co.**

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*Builders* OF AUTOMATIC POLISHING AND BUFFING MACHINES FOR NEARLY HALF A CENTURY

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*For the newest in coated abrasives... watch BEHR-MANNING!*

A favorite for dry fining and blending plumbing parts.

Tops for removing flash from difficult inside contours.

Contour polishing fluted areas of bits on 1/2" free-running belt.

## Spinning-off faster, better finishes

With BEHR-MANNING Coated Abrasive Belts on the job, it's easy to bring-up superior finishes on difficult contours. For example, spin polishing hair-dryer domes (above) on smooth-cutting abrasive belts has proven a highly productive and efficient operation. Test these versatile, BEHR-MANNING Abrasive Belts on your parts — in your plant or in a nearby BEHR-MANNING Demonstration Room. Write for the Production Digest Bulletin. Contains 60 pages of detailed data on coated abrasive grinding and polishing techniques. Address Behr-Manning, Troy, N. Y., Dept. PF-8

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# Get It Wet!

You've got to get water into and all around the soil, if you're going to wash soil off metal parts and surfaces. That's what makes

*Cowles*

## NEW QC WASHING MACHINE CLEANER

a *completely different* kind of alkaline washing machine cleaner.

Cowles QC Washing Machine Cleaner "wets" the soil faster—loosens it more thoroughly—emulsifies it more completely.

All this . . . *without objectionable foaming!*

Get the complete story on this *brand* NEW Cowles QC Washing Machine Cleaner. Send this coupon.

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Vol. 20, No. 11

AUGUST, 1956

## . . . . editorial . . . .

# Trends in Finishes and Finishing Methods

In the middle and late 'twenties the rush to apply the new miracle bluish-white finish—chromium plate—to automotive trim and hardware caused a major change in automobile styling and appearance. Also, it marked the establishment of electroplating as an industry.

The first pronounced change in automotive trim finish in the past 30 years is gathering momentum with each passing day. This, as reported on page 15 of the January issue of PRODUCTS FINISHING, is the use of anodized aluminum rather than chromium plated zinc base die castings. Anodized aluminum bumpers are in the planning stage. This change, certainly dictated in part by the continued shortage of nickel at the established market price, gives designers new opportunties to use colors in automotive trim as well as in automobile bodies. The plater must now become an anodizer (and color anodizer) also.

Some appliance manufacturers have been using white brass (instead of nickel) as an intermediate plate for steel products, under the final chrome finish (see page 26 of this issue). For users of bright nickel, there is a great deal of interest now in bright bronze instead of copper as an intermediate coating. The bronze is said to plate three times as fast as copper.

Porcelain enamel finishing methods have advanced to a stage of complete automation. It is now possible to apply ground coat by means of automatic dipping machines, flow-coating machines, or partly mechanized hand dipping systems. After a period of cooperative research and development of both finish coat enamels and application methods which has spanned the past 20 years, it is now possible to apply finish coat porcelain by electrostatic spray. (See page 68 of the April issue of PRODUCTS FINISHING.)

Paint, lacquer, and enamel coatings can be applied efficiently by many completely mechanical methods, including dipping, flow coating, tumbling, roller coating, automatic spraying, and electrostatic spraying. Research on paint finishes has centered around the development of coatings which have superior durability and retain their gleaming color for a long time. At the same time, coatings that will cure or bake in shorter cycles at lower temperatures have been studied. Now, the so-called "catalyzed" coatings, applied by a special type of spray gun, are creating a great deal of excitement in the paint finishing industry. One goal is the development of coatings which will retain desirable film strength and gloss, yet cure by air drying.

Ezra A. Blount

—EDITOR

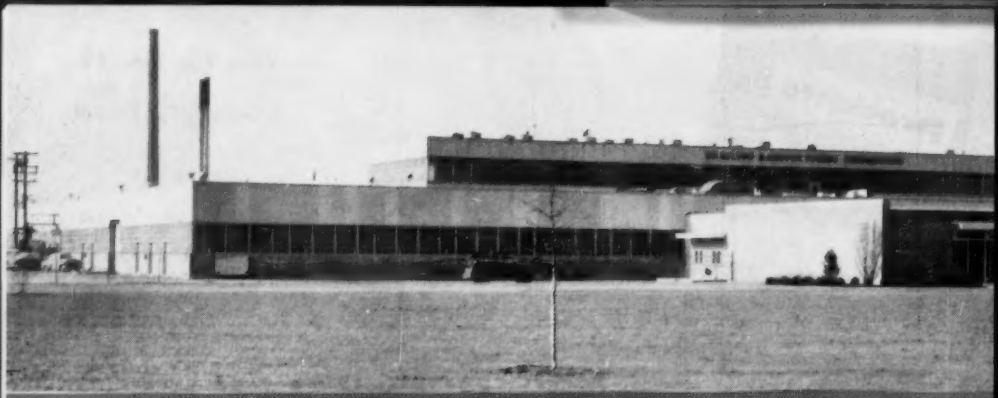


*Fig. 1—New plant and office building recently built by Hamilton Mfg. Corp. in Columbus, Ind.*

# Finishing Cosco Metal Fur

***Attractive finishes add much to sales appeal of metal furniture products. Efficiency in finishing is necessary in any large manufacturing operation. Here's how Hamilton Manufacturing attains both ends in a new plant.***

By GERARD H. POLL, JR.
Associate Editor

products feature finishing

**HAMILTON MANUFACTURING CORPORATION** produces the popular line of Cosco home and office furniture. Completely conveyorized setups are used to finish these products in a plant (Fig. 1) recently built by the company in Columbus, Indiana. Typical items produced by the huge plant are metal folding card tables and chairs, kitchen stools, utility tables, carts, metal office furniture, tables and other tubular upholstered furniture.

Bright colored finishes, metallic paints, wood grain finishes and combinations of plated finishes are used to make the furniture attractive and durable. Modern finishing techniques are used in applying the fin-

ishes, and the fullest use is made of efficient equipment, especially conveyors, for applying these high quality finishes quickly and economically. The conveyor system and plant layout are particularly well-engineered, so that wherever possible one piece of equipment serves several purposes.

**Paint Finishing Processes**

Most of the painting in this plant is done with two separate electrostatic systems, a bell system and a reciprocating disc system.

All parts are finished in a continuous, conveyorized, cleaning-painting-baking sequence. The first step in each paint finishing process is metal preparation. This process is similar in every painting process carried out in this plant. In the case of parts being painted in the disc-type electrostatic booth (Ransburg No. 2), the cycle is as follows:

1. Submerge in hot (140-150 deg. F.) water, to loosen dirt and drawing compounds.

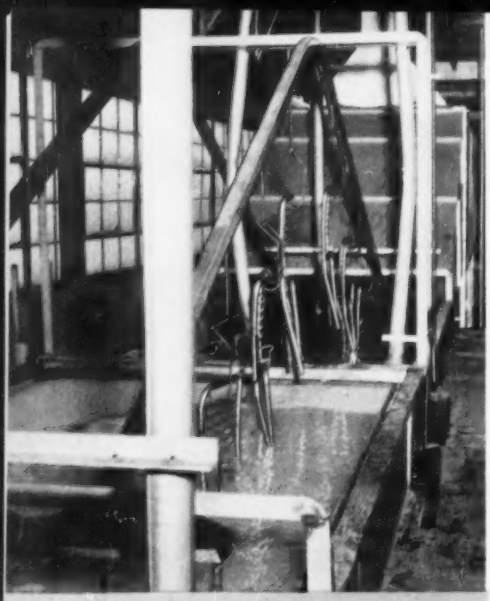
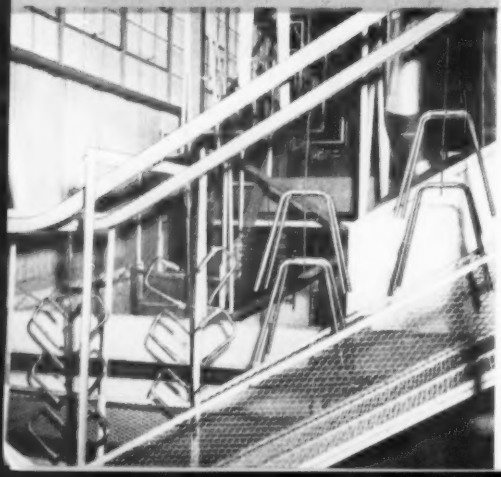


*Fig. 2—Tubular metal products emerging from the last two rinses in six-stage cleaning and phosphatizing machine. The rinse water in the final tank (foreground) contains a wetting agent. Blower above this tank (not shown) pushes the foam to one end of tank, keeping it away from the clean parts.*

*Fig. 3—Parts on this conveyor are being lowered from the second-floor dry-off oven to the first-floor electrostatic painting booth. This part of the conveyor is purposely longer than need be to take the parts to their destination. Reason: Allow the parts time enough to cool sufficiently before painting.*



*". . . dry off oven is mounted on top of paint baking oven . . ."*

2. Spray wash at 180 deg. F. with a solution of 1.2-5 oz./gal. Macco W cleaner.
3. Rinse in cold water.
4. Phosphate coat by spraying a solution of 5-5.5 oz./gal. of Bonderite 1000 at 140 deg. F.
5. Rinse in cold water.
6. Rinse in water containing a wetting agent.

The machine for performing the above operations is completely enclosed, except for the last two tanks, which are open (Fig. 2).

Function of the final rinse, which contains a wetting agent, is to "wet" the metal to prevent streaks and water marks on the surface. This solution tends to form a blanket of foam on the surface which would stick to the emerging parts if not removed. Positioning a blower pipe at an angle above this tank so that it blows all the foam to one end of the tank, where it is harmless, solves this problem.

**All tanks are kept clean** by overflowing as needed, allowing dirt to flow over the top and replenishing the solution with clean material.

Following the cleaning cycle, the conveyor carries the parts through a dry-off oven, which is mounted on top of the paint baking oven to save floor space. A double pass through this oven, operated at 430 deg. F., thoroughly dries the parts. The conveyor installed to transport the parts to the spray booths is long enough for the parts to cool before reaching the painting stations (Fig. 3).

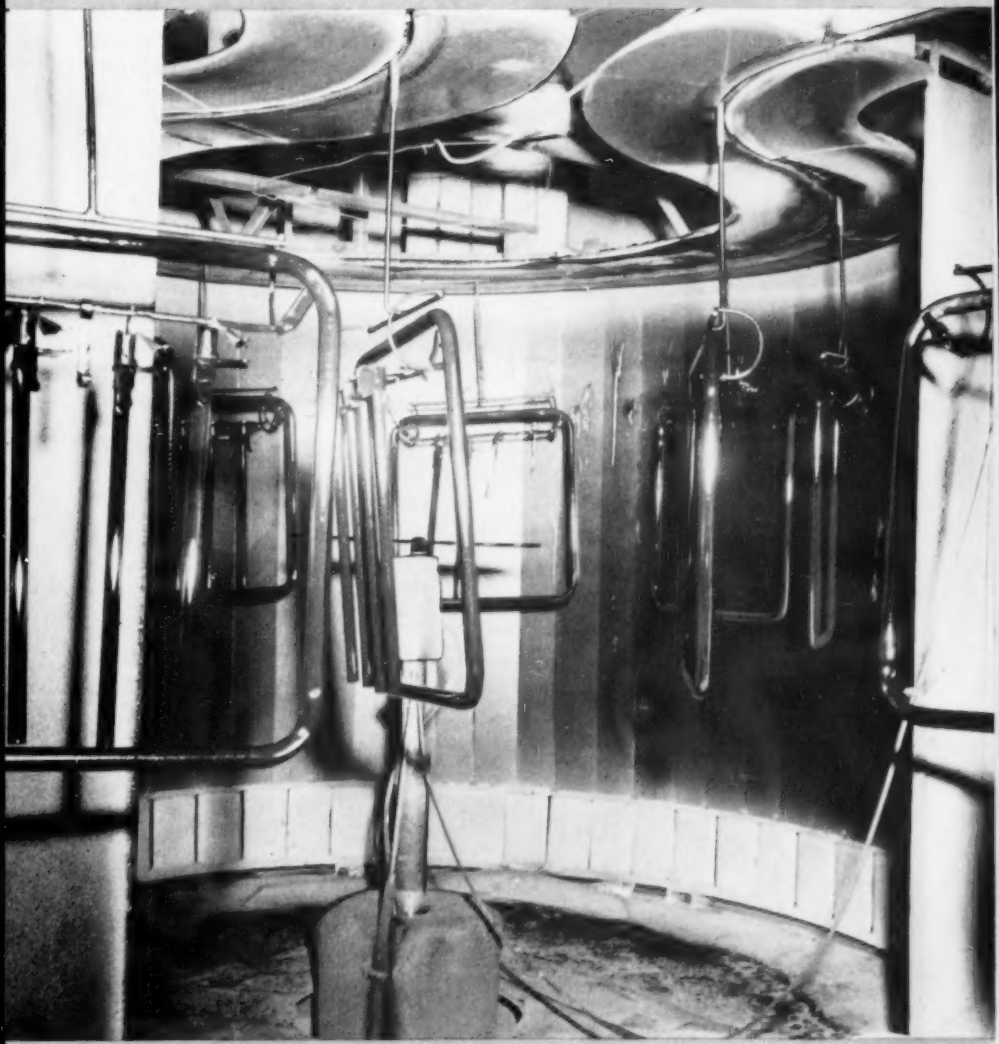


*Fig. 4—Tubular furniture parts being painted with one of two reciprocating discs used for applying primer. Disc moves up and down from a pit in the floor, applying coating to the full length of each part as it travels around the disc. Conveyor then circles another identical disc, thus exposing the other side of each part to the electrostatic spray.*

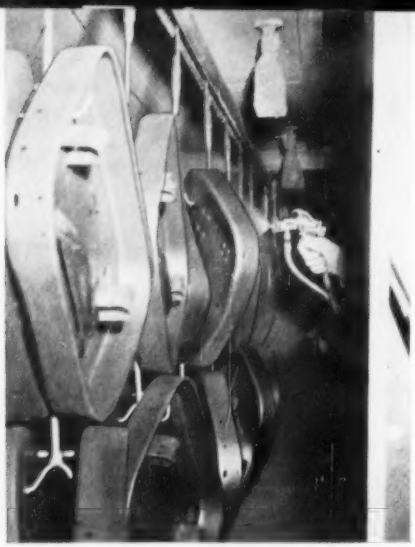


*Fig. 5—Recessed and intricately shaped parts are hand sprayed in water wash booth, then conveyed to infra-red oven and baked.*

***Finishing Metal Furniture . . .***

The loading station, cleaning machinery and dry-off oven are all on the second floor level of this plant. Electrostatic painting operations are carried out below them, on the first floor.

**This electrostatic system** has four reciprocating disc atomizers (two of them apply prime (Fig. 4), and the other two, finish coat). This type of electrostatic system consists of a charged (90,000 volts) rotating disc with a hole in the center through which the paint is fed. By centrifugal force it moves to the edge of the disc and is broken up into a fine

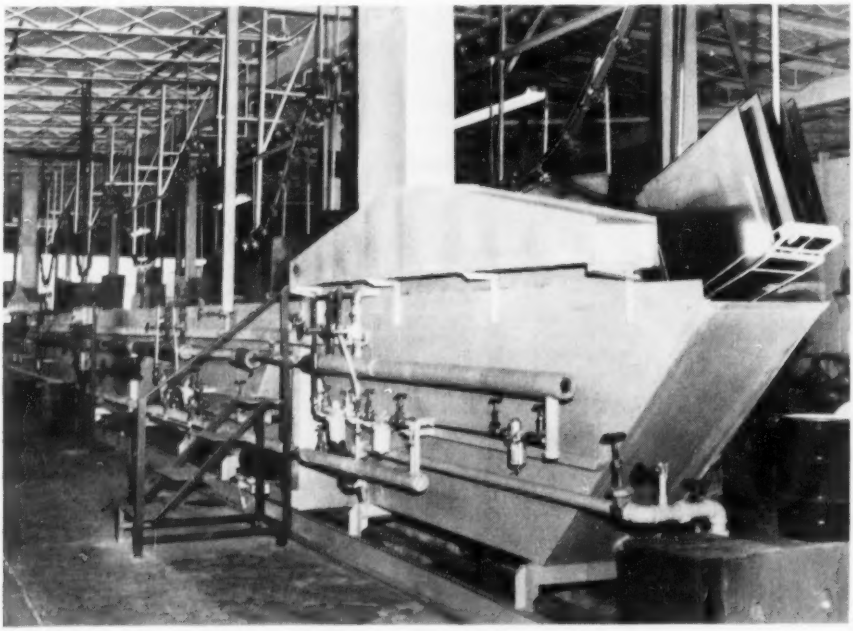


*Fig. 6—Five-stage washing machine used for cleaning and phosphatizing flat metal sheets before the graining process. Cable conveyor dips to immerse the sheets in each tank.*

spray of charged particles as it flies off the disc. These charged particles are electrostatically attracted to the grounded parts on the conveyor.

**The disc is mounted** on a hydraulically-operated cylinder, which oscillates up and down from a pit in the floor. In this manner, the full length of the product hanging on the conveyor is given a coating of paint as it travels past the disc. The conveyor wraps around one side of the first disc and the other side of the second (in a figure 8 pattern), so that paint from the discs can cover both sides of all parts.

After carrying parts through the prime spray in the electrostatic booth, the conveyor takes them back to the second floor level and into a 115-foot A-type Burdett infra-red oven. The conveyor makes a double pass through the oven in five minutes. Baking temperature is 400 deg. F. Partlow oven controls are used to control temperature and Minneapolis-Honeywell Protectoglo combustion safeguards shut off the oven automatically in case of fire.

Emerging from the baking oven, the conveyor returns to the first floor and moves through the other side of the electrostatic booth, where parts receive a coat of enamel in a system identical to the one used to spray primer. Leaving the booth, the conveyor takes the parts back to the same oven used to bake the prime

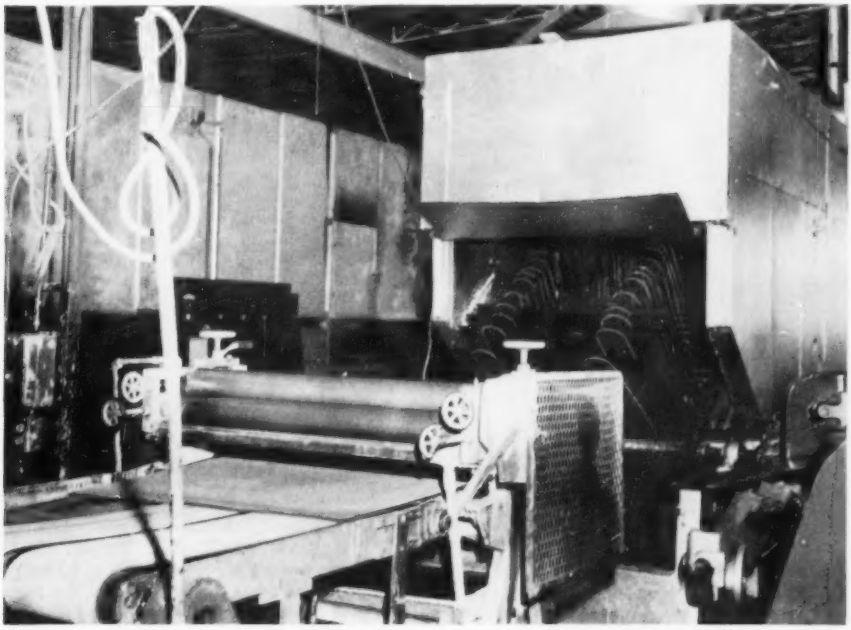


*Fig. 7—Flat sheets receiving the first coating applied in the graining process. Sheets are baked in wicket oven (right background), then are ready for the next coating.*

coat. It makes another double pass through this oven and then returns to the first floor, where the finished parts are unloaded directly onto assembly lines.

A Richards-Wilcox overhead chain conveyor is used to carry parts through the entire process. More than half a mile of conveyor—2850 feet to be exact—is used to complete the cycle, from the first wash tank to the unload station. The conveyor travels at 27 ft./min.

Some parts that are shaped so as not to be suitable for electrostatic paint application are hand sprayed in a water wash booth (Fig. 5). These parts are baked in another Burdett infra-red oven, similar to the one described previously.

**The other type of organic finish** applied to some Cosco products (serving trays) is a wood grain finish. All of the painting in this process is done by rollercoating, except for the final glaze, which is sprayed on electrostatically.

Prior to the graining operation, the steel, in flat sheets, is subjected to a five-stage cleaning process (Fig.

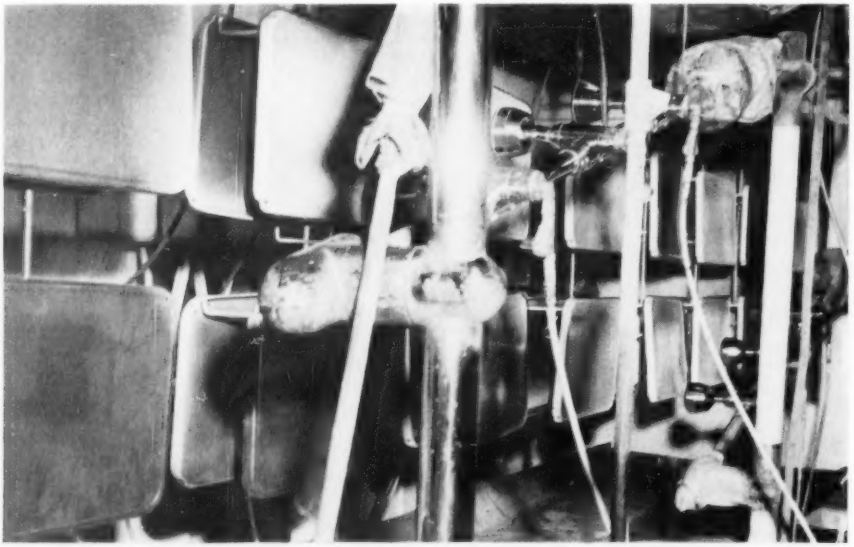


*Fig. 8—Flat metal trays being painted in the bell-type electrostatic system. Two sets of three bells each can be seen. Each is placed at the proper angle to coat the trays from top to bottom. One set paints the trays on the upper racks, the other set coats those on the lower racks. This installation and another like it in the same booth are used for priming and finish coating trays in solid colors and for applying the final clear glaze to wood-grained trays after they have been cleaned of drawing compound and force dried.*

6) similar to the one previously described except that every step here is accomplished by immersion.

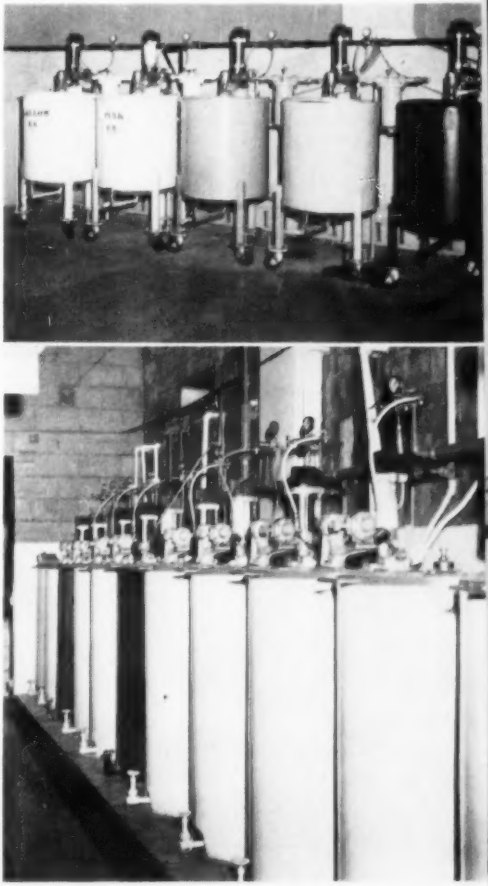
Steps in the process are:

1. Immerse in solution of MacDermid Metex soak cleaner at 180 deg. F.
2. Cold water rinse.
3. Phosphatize in solution of Bonderite 1000 operated at 140 deg. F. Concentration, 5-5.5 oz./gal.
4. Rinse in cold water.
5. Rinse in water containing a wetting agent.

After being cleaned, the sheets are unloaded from the conveyor in preparation for the graining process. The first step is application of a clear base coat. This is applied by a roller coater placed near the opening of an infra-red oven (Fig. 7). The roller coater applies the coating and feeds the sheets onto a wicket conveyor which carries the sheets through the oven. The oven temperature is maintained at 350 deg. F. by automatic temperature control.

**Another roller coater,** placed at the opposite end of the oven, applies the second, or ground coat. Sheets are then placed on a belt conveyor, which returns them to the starting point. They are again baked. Another roller coater is then used to apply the grain. The rollers of this graining machine have the desired grain pattern etched onto the roller. A coating applied to these rollers is transferred to the flat sheets as they are fed through. The rollers that apply this coating must be absolutely true and round if the pattern of the grain is to be reproduced faithfully.

The sheets are again fed into the wicket-type oven. They are then placed on the belt conveyor so that the next coating, a clear glaze, may be applied by roller coating. This coat is baked in the wicket oven. Parts are now ready for forming.



*Figs. 9, 10 — Views of the central mixing rooms, which supply paint under pressure to the two electrostatic booths. Each tank is colored to correspond to the color of paint it contains. Paint is constantly recirculated from this room to the booths, even when not in use.*

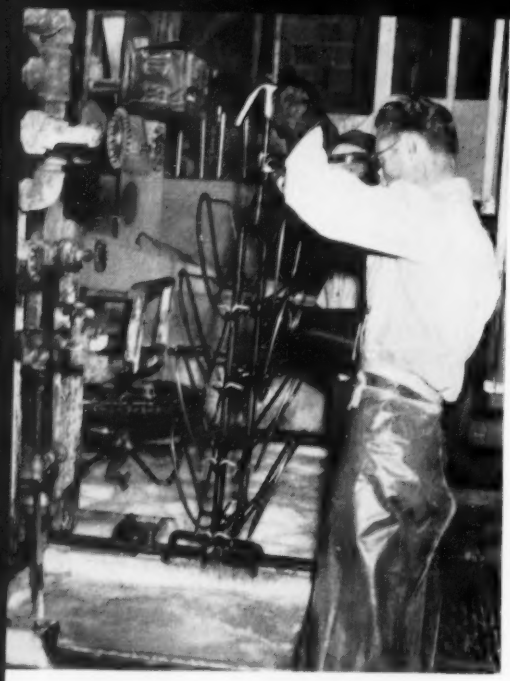


*Fig. 11—Parts to be nickel plated are cleaned anodically in this semi-automatic machine.*

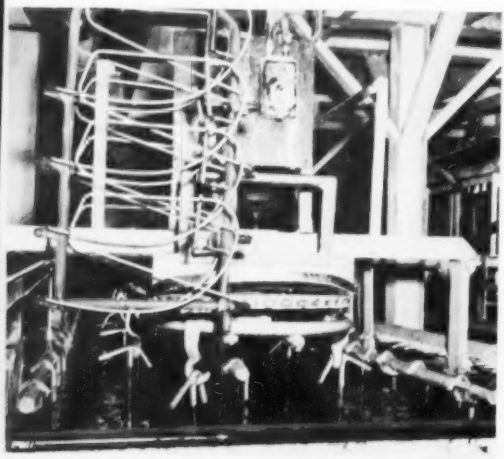


*Fig. 12—Promat Probrite white brass being applied in a semi-automatic machine in a 2,800-gallon tank. Plate produced is bright enough to be plated directly with chromium.*

The coating that has been applied here is formulated and applied so as to be tough and resilient. It must withstand the strains imposed by the forming operation.

Grained and glazed sheets are next formed to the desired shapes on forming presses. To remove the drawing compound on the grained parts after the forming operation, the parts are placed on a conveyor which takes them through a six-stage washing machine, also used to clean and phosphatize unpainted metal. This cleaning cycle is:

1. Spray wash with hot water to loosen drawing compound.
2. Spray wash with a solution of Diversey 519 Cleaner.
3. Spray wash—cold water.
4. Spray with Bonderite 1000.
5. Spray rinse—cold water.
6. Immerse in water containing a wetting agent.

**The chain conveyor now transports** these parts through a double-pass dry-off oven and then down to the first floor level, where they pass two sets of Ransburg bell-type electrostatic units (Fig. 8). Each unit has three bells. A clear glaze coat is applied in this booth. Parts are now conveyed to a Burdett infra-red oven on the second floor (the same oven is used to bake parts from the hand spray booth). This oven is identical to the oven used for baking parts from the disc-type electrostatic system. The conveyor makes a double pass through this oven and then transports the finished parts to the assembly area for unloading.

The bell-type electrostatic booth has two identical electrostatic setups. When parts are not being glazed after graining, one of these lines is used for prime coating trays that are to be painted solid colors. The other line is used to apply the solid color finish coat to the primed products, after baking. The Richards-Wilcox conveyor which serves this system is 1,890 feet long.

Each of the electrostatic systems has its own central mixing room (Figs. 9, 10), which supplies paint under pressure directly to the automatic sprayers. Color changes are made by merely turning a valve and allowing solvent to spray through the system until it is cleaned and ready for the next color. Six different colors of paint are supplied from these central mixing rooms. All paints are recirculated constantly, whether in use or not, so as to keep them from settling and separating.

Only metallic paints are supplied from pressure tanks kept within the booths. They are handled differently, since special insulation is required to keep the electrostatic charge from traveling back through the metallic paint, which will conduct current.

Liquid Envelope strippable spray booth coating is used to protect the walls of the spray booth from overspray, most of which occurs during color changes while the guns are being cleaned.

**Accumulated paint is stripped** from conveyor hangers and racks by the Kolene process. This process consists of immersing racks in a bath of specially compounded molten caustic mixture, operated at 900 deg. F. About two minutes immersion in this material completely strips the racks of accumulated paint. The tank for this process is completely enclosed.

### Electroplating Processes

Hamilton Manufacturing applies two types of plated finishes to steel parts used on products manufactured by the company. The first consists of a nickel-and-chromium plate, and the second, a white brass-and-chromium plate. Both processes produce equally attractive finishes and both give good service.

Each plating installation consists of a combination of transport conveyor and semi-automatic processing and plating tanks. Intermediate rinsing is accomplished on the transport conveyor when possible. The white brass-chromium unit is located in one part of the plant, and the

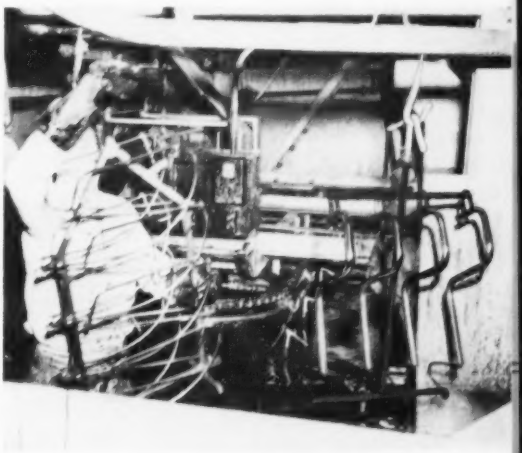


*Fig. 13—A rack of parts being removed from the transport conveyor for chromium plating in semi-automatic plating machine (background). Rack of plated parts is at right.*

*". . . finish produced is bright enough to chromium plate without buffing . . ."*

nickel-chromium unit is located in another area to achieve minimum handling of parts between fabrication and assembly.

The cleaning cycle for each process is almost identical. Steps in the process are as follows:

1. Cathodic cleaning in a solution of Metex 19LC (7-8 oz./gal.) for 2.75 minutes at 50 a.s.f. Temperature, 190 deg. F. Semi-automatic tank.
2. Rinse in cold water.
3. Anodic cleaning in solution of MacDermid Anodex (12-14 oz./gal.), operated at 80-90 a. s.f. Semi-automatic conveyor (Fig. 11).
4. Rinse in cold water.
5. Immerse in solution of MacDermid Pickling Salt M-629. (3 per cent free acid).
6. Rinse in cold water.

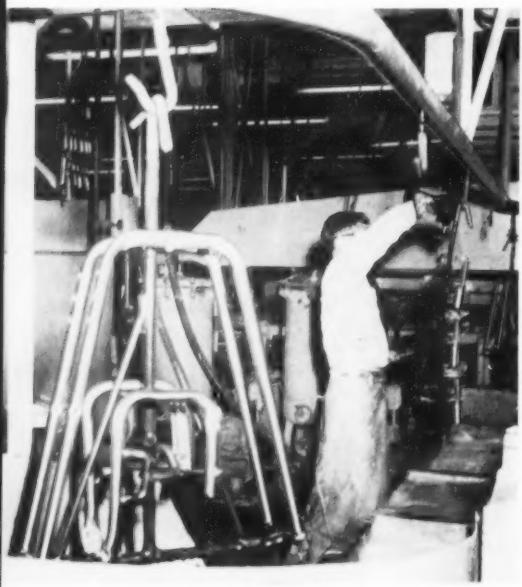


*Fig. 14—Parts being cleaned prior to nickel plating. Two Industrial filters (background) continuously filter the nickel solutions.*

Two Udylite semi-automatic plating machines are used to plate the parts with white brass. The Promat Probrite plating process is used to produce this finish (Fig. 12). Each tank holds 2,800 gallons. Parts are plated in this solution for eight minutes. Temperature is held at 64 to 65 deg. F. by a heat exchanger. Current density is 25-35 a.s.f. Concentration of the plating solution is maintained by straight zinc and copper cyanide additions. The finish produced is bright enough to chromium plate, without buffing.

**Following white brass plating,** racks of parts are hung on the transport conveyor and sent through a spray and immersion reclaim rinse, an acetic acid immersion rinse, and another cold water rinse prior to chromium plating.

Unichrome CR-100 plating solution (56 oz./gal.) is used to chromium plate the parts in a Udylite semi-automatic plating machine (Fig. 13). The cycle takes three minutes.

Following chromium plating, the parts are returned to the transport conveyor and given a spray and dip reclaim rinse. An evaporator is used to concentrate the solution obtained from this rinse, and the concentrated solution so obtained is used to

maintain the proper concentration in the chromium plating tank.

**Another cold water rinse** follows the spray and dip reclaim rinse, and the parts then are dipped in Promat 30-A or 30-B chromate sealer, so as to increase corrosion resistance.

A final hot rinse completes the process. The entire cycle takes 55 minutes. The coating so produced will withstand 70 hours salt spray, according to Hamilton Manufacturing's tests.

A total of 650 feet of Richards-Wilcox overhead cable conveyor is used to transport parts between the various operations in this section.

In the nickel-chromium plating unit, located in another section of the plant, the same cleaning cycle (Fig. 14) as outlined above for the white brass plating is used, except that the pickling acid is an 8 per cent hydrochloric acid solution with Promat 70-73 accelerator.

**The cleaned parts** are nickel plated (Fig. 15) in a Udylite semi-automatic plating machine. McGean bright nickel plating solution is used. The two nickel tanks hold 2,800 gallons each. pH is 3-3.5, and analysis of the solution shows 9.88 oz./gal. nickel metal. Time consumed for nickel plating is 12 minutes.

Nickel plating is followed by three rinses (spray and immersion) and then chromium plating, which is done in the same manner as the chromium plating over white brass. After chromium plating, parts are

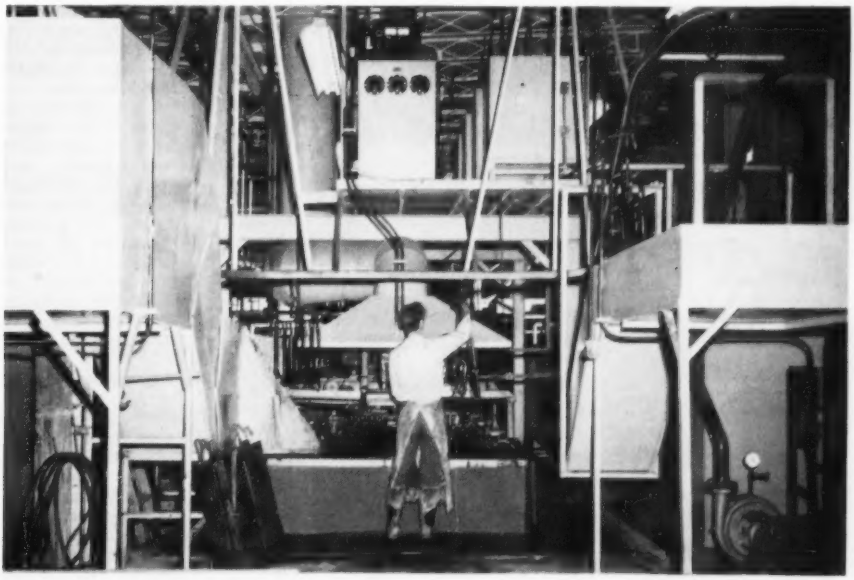


*Fig. 15—Parts being removed from transport conveyor to be nickel plated in Udylite semi-automatic plating machine. Note Wagner rectifiers mounted above the plating tanks. This placement saves space, keeps rectifiers close to tanks. (Photos by PRODUCTS FINISHING.)*

given a concentration rinse and a hot rinse, which completes the cycle.

In this finishing system, transport conveyors are used to carry racks of parts from one semi-automatic plating tank to the next.

Rectifiers used in this plant are mounted above the plating tanks to save floor space and keep them as close as possible to the tanks, to give the best current efficiency possible.

**ELECTROPLATING FILM. Bart-Messing Corporation** of Belleville, New Jersey, has announced the completion of an educational motion picture dealing with the electroplating facet of metal products finishing.

Entitled "A Brighter Tomorrow," this 16 mm. film visits the various plants of the Bart-Messing Corporation, where a number of interesting metal finishing processes and applications are observed and described.

The manufacture of Sel-Rex rectifiers and Double Duty filters for electroplating is followed from the drawing board to the finished product. Scenes taken in the laboratories of Sel-Rex Precious Metals, Inc., an affiliated company, show some of the procedures employed in the preparation of precious metals, salts and solutions.

"A Brighter Tomorrow" gives a panoramic view of the Electroplating Industry's contribution to our country's security, welfare and comfort; from the anti-corrosive electro-deposits of nickel on airplane propellers, steel sheets and pipes and fittings, to the functional or decorative electroplating of gold, rhodium and silver on electrical or electronic components, jewelry and various household articles.

A print of "A Brighter Tomorrow" is available from Bart-Messing Corp., 229 Main St., Belleville, N. J., free of charge to qualified organizations, for showings at sales meetings, conventions, educational seminars, or any public gathering interested in electroplating.

# The abbot and the Bishop's Candlesticks

The Bishop was upset. How could he possibly have 500 dull, tarnished brass candlesticks polished and gleaming in time for tomorrow's special candlelight services?

The *abbot* was quite calm. He *knew* the answer to the Bishop's dilemma and in less than twenty-four hours, he returned from his laboratory with the candlesticks – bright and glistening.

*How did he do it?*

Articles made of brass and other metals may be readily burnished and tumbled with Abbott Burnishing Materials. Made in six scientifically designed shapes, Abbott Burnishing Materials make efficient and uniform contact on metal parts and castings of every conceivable size and shape. Economical to use, they are *deep hardened* and have a mirrorlike glass-hard surface for extra long life. Combined with the Abbott Vertical Tumbling Barrel, they make the perfect barrel finishing combination.

*If you have a special barrel finishing problem, let the abbot help you solve it. Just write us.*

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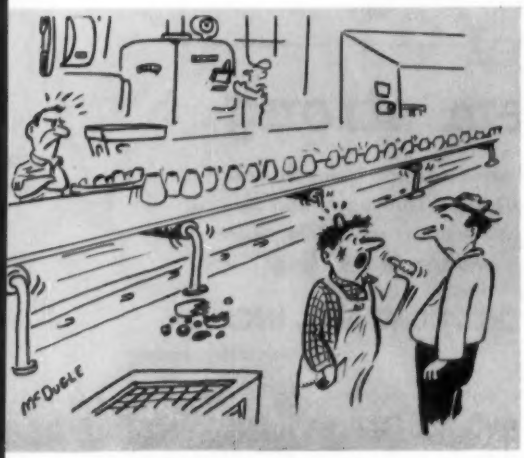
# Historical Notes on Enameling Iron for Porcelain Enamel

***The subject of this discussion is commercial low carbon enameling iron manufactured for enamels that fire at about 1550 deg. F.***

By **DR. J. J. CANFIELD**
Armco Steel Corporation

**IT MUST BE RECOGNIZED** that much cast iron has been enameled and that considerable effort is being made to apply enamels on various metals and alloys for use at comparatively high temperatures. Also, enamels are being applied on aluminum near 1000 deg. F. and on low carbon steels near 1200 deg. F.




*"I don't see why he got so darn mad—all I said to him was 'What's new, Bub?'"*

It is proposed to mention a few historical practices which later led to the enameling of iron, the essential characteristics of good enameling iron, how these are produced, and how enameling irons may differ.

**Enameling iron serves** a great many needs. In the United States in 1952, over 3½ million refrigerators, over a million each of home freezers, gas ranges, automatic washers, and washing machines were produced. Each of these require a major proportion of enameling iron. In addition, enameling iron sheets made bathtubs, lavatories, shower baths, signs, and architectural panels. All such applications demand good metal and a lot of it. You can see, therefore, that enameling iron has grown to be of great importance.

**Historically, the art of enameling of metals** was confined to decoration until about the 15th century. The enameling of gold, silver, and copper flourished in the 12th and 14th centuries in Europe, and then someone found that the blue enamels would stick on cast iron. By 1830, the commercial enameling of cast iron utensils had been started in Czechoslovakia. This was nearly abandoned because of lead in the enamel. In 1859, however, this same company began to enamel articles made from steel sheets and later grew to be a large industry in Europe.

Steels became cheaper about 1856 as the result of the Bessemer and the Siemens Martin processes. Pots and pans were the chief articles formed from the steel sheets and then porcelain enameled.

**It may be of interest** to know that a plant was built in the United States in 1870 for enameling cast iron bathtubs. By 1873, another plant had been built with a capacity of three a day. Now over 500,000 bathtubs per year are made in the United States from formed or pressed enameling iron sheets.

It was in the early 1900's that commercially pure iron began to change the porcelain enameling industry. A bulletin had been issued by the U. S. Bureau of Standards stating that the corrosion resistance of iron was increased by the lowering of impurities. This commercially pure iron was developed in 1906 for rust resisting uses and later it was learned accidentally that this metal had superior enameling properties. The metal would stay flat during firing and the enamel surface was better than on steels. Experience has shown that the removal of impurities such as carbon and manganese gave iron more strength at enameling temperatures, and the removal of such things as phosphorus, sulfur, copper, nickel and chromium gave more consistent and better drawing behavior. Because of these and other advantages, the porcelain enamel industry really began to grow.

**In January 1912,** a letter from an Armco customer stated that he had ordered four carloads of Armco Ingot Iron because savings in culls covered the added 40 per cent cost and the porcelain enameled refrigerator parts had much better quality. This demand has grown with the expansion of the kitchen, bathroom, and basement equipment field.

By 1927, an entire plant had been built to make porcelain enamel washing machines. There followed other integrated plants for such things as

*"Sure I saw that on the bulletin board, but I think we interpreted it differently."*

refrigerators, stoves, signs, and pressed metal plumbing ware. All of these resulted from rapid production methods with sheet iron that was superior in enameling behavior.

**When we think of the 370 millon dollar** volume of porcelain enameled products last year in the United States and a forecast of near 500 million just five years hence, we realize that the porcelain enameling industry is still growing.

It should be mentioned that there is an increasing tendency to insist on thinner coats, good coverage of porcelain enamel with good surface and adequate adherence. To accomplish this, it will be necessary to establish closer control in the manufacture of the metal. It is apparent that this will be done and that the future trend is to continue the use of low carbon enameling iron for the higher quality porcelain enamel products.

It is reasonable to expect many new uses and a continued increase to occur in the porcelain enameling of sheet metal.

*Adapted for publication in PRODUCTS FINISHING from a paper presented at the Hamilton Branch of the Canadian Institute of Mining and Metallurgy at Hamilton, Ontario.*

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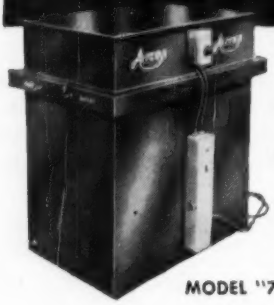

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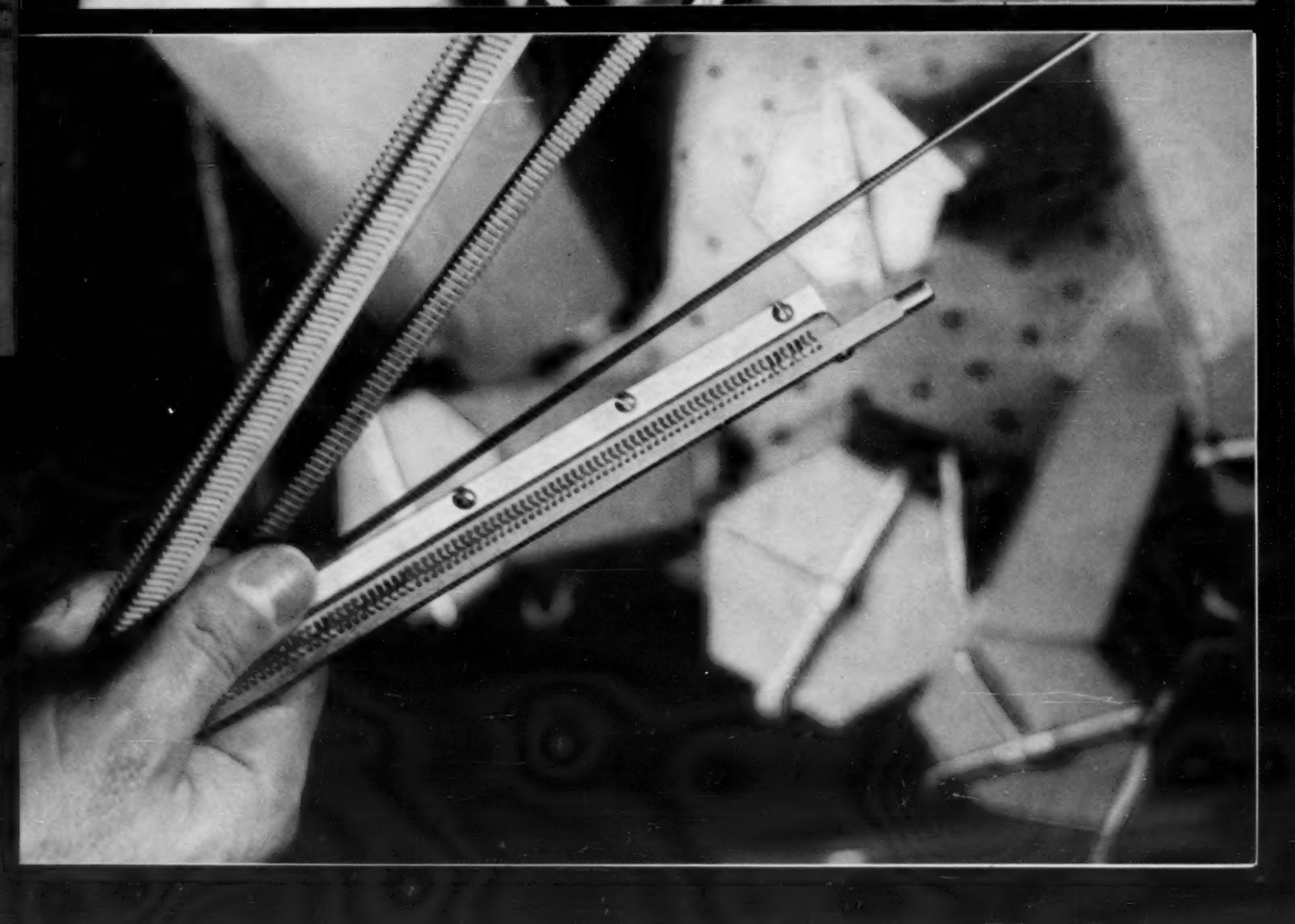

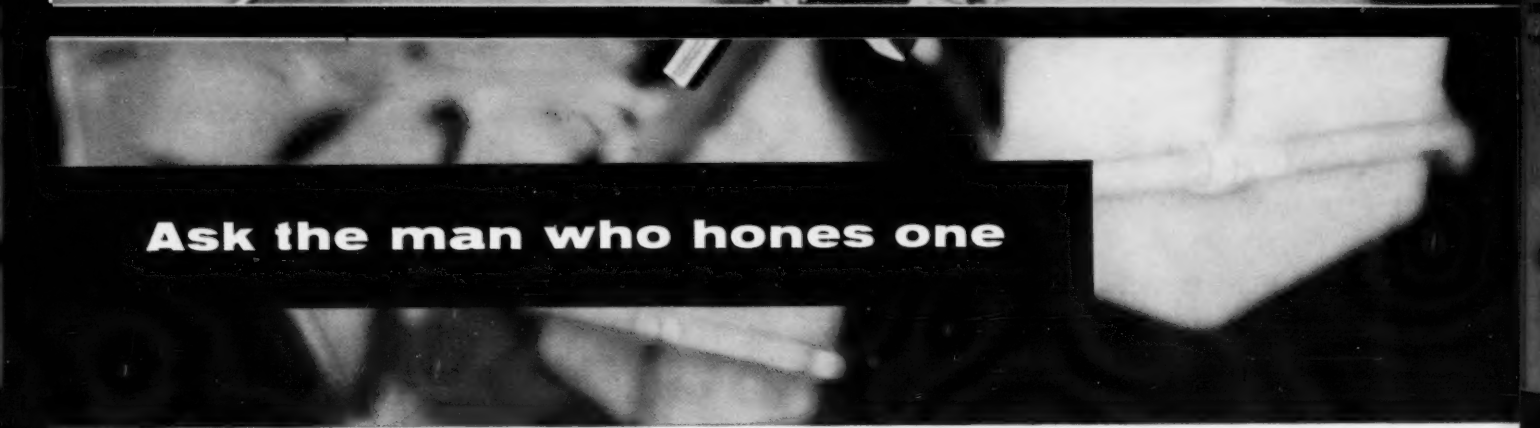

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# LOWER YOUR COSTS IN PLATING

THE FINISHING TOUCH

by Guy A. Cummings
*Metal Finishing Sales Manager*
FREDERIC B. STEVENS, INC.

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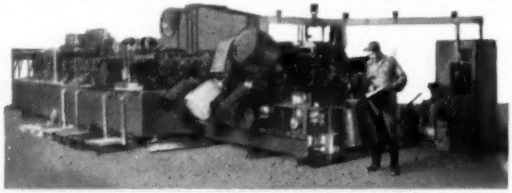
Let us tell you how the Stevens Automatic Barrel Plating Machines can help you. They are used for zinc, cadmium, nickel, brass plating of such small parts as screws, bolts, nuts and stampings, and also a wide variety of bulk immersion processes such as phosphatizing, washing, pickling, and chromating.

We have been making these machines for a long long time—hundreds are in operation—so you can be confident that there are no mechanical bugs. They are simple to operate—feature automatic unloading—and when equipped with automatic load devices, several machines can be operated by only one man. The cylinders which take the parts to be plated are the oblique open ended type—without



covers. By raising or lowering the cylinder the parts slide in and out without the necessity of unclamping and removing covers normally needed for horizontal type cylinders.

The Stevens simple compact design makes it economically feasible to purchase production capacities as high as 4000 pounds per hour in one machine, or just as practical to distribute the capacity between two or more machines to provide flexibility in plating thickness, production, etc.

Here are other advantages in using Stevens Automatic Barrel Machines—uniformity of deposit, fewer rejects, better working conditions, easier chemical control, better scheduling and delivery and *lower costs per piece.*

The selection of the right equipment, the capital investment required, the arrangement of your plant to install the equipment are important considerations. Frederic B. Stevens, Inc., with its long experience in the metal finishing field has made many analyses of this kind. We can help you too.

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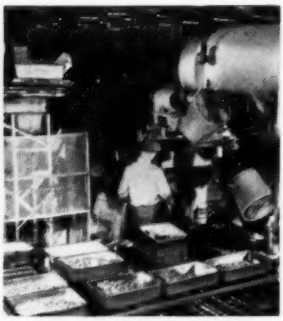
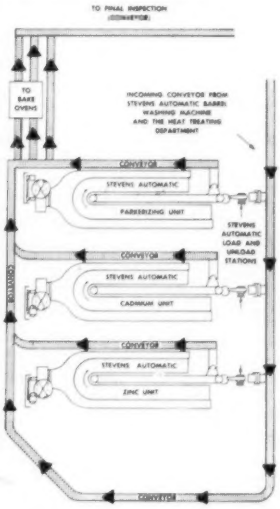


Showing Automatic Loading Device and Automatic Barrel Unloading Station on Stevens Automatic Barrel Processing Machine, incorporated as part of the Straight-Flow operation.

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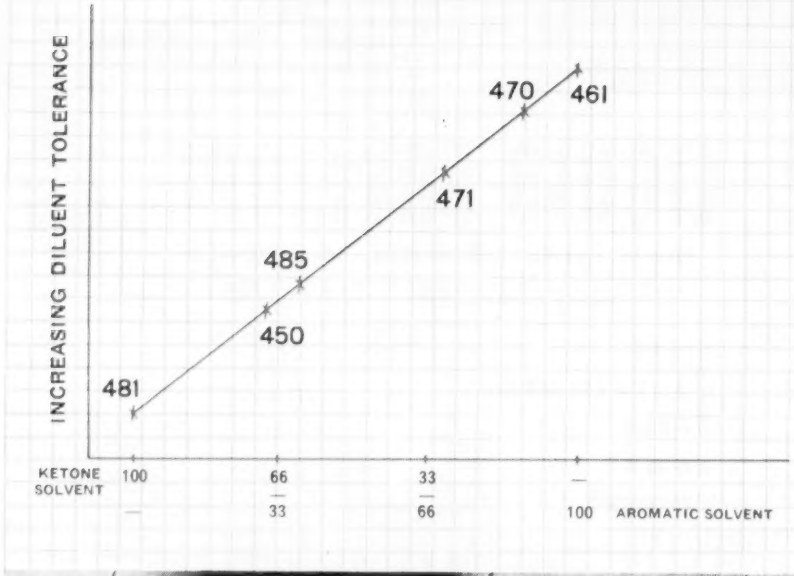


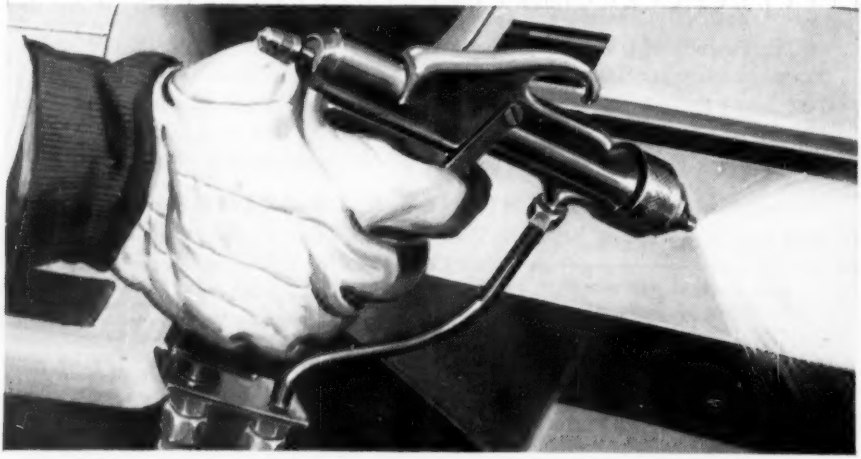

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Details below indicate the wide range of applications covered by the 6 Exon solution resins. We believe you will find among them the engineered answer to your particular coating problem.

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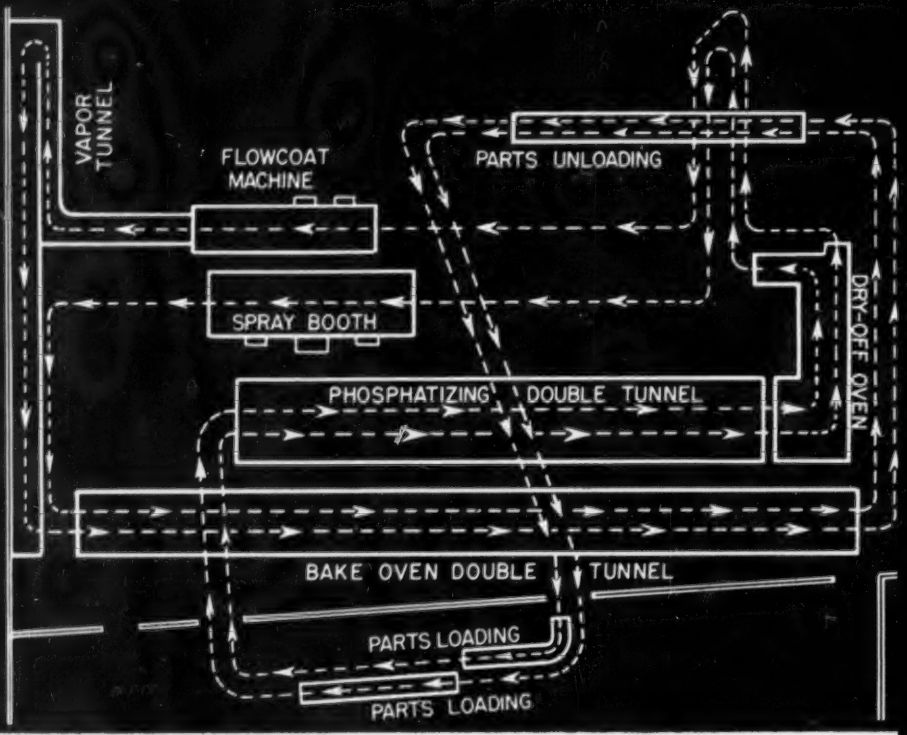
# Twin Type Automati System Is Flexibl




**RECENTLY UTILITY APPLIANCE CORPORATION** of Los Angeles, California, completed a plant expansion program to provide for increased production of the company's gas furnaces, heaters, air coolers, air conditioners, and gas ranges. The plant expansion program included the installation of a new finishing department planned to achieve the objectives of increased production and improved material flow.

A new twin type automatic finishing system was designed and built by Ransohoff, Inc., Hamilton, Ohio, based on requirements established by Utility Appliance production and plant engineers. This completely mechanized system has made it possible to apply enamel finishes to the many metal products manufactured by Utility Appliance Corporation with increased efficiency and economy. Rigid quality controls have established the fact that improved finish quality has been obtained.

# finishing
# and Efficient

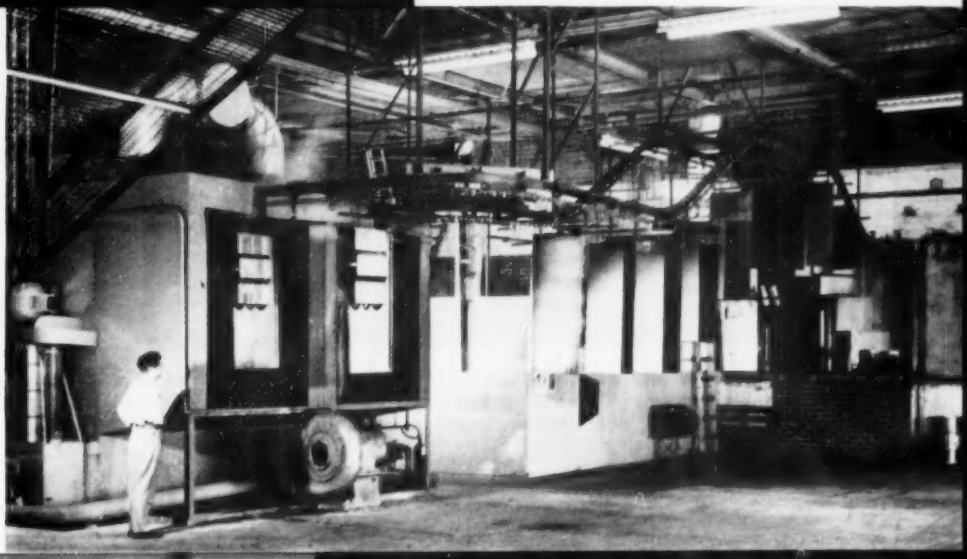
*Fig. 1—(Left) Plan view of conveyorized finishing system at the Utility Appliance Corporation, Los Angeles.*

*Fig. 2—(Below) Twin conveyors enter the new building through double fire doors. The first step in metal surface preparation is alkali cleaning, which takes place after the twin conveyors make a 90-deg. turn into the five-stage cleaning and phosphatizing machine.*

In planning the new finishing installation (Fig. 1), material flow was rearranged within an existing building containing 200,000 square feet of floor space and an addition approximately 200 feet wide and 500 feet long was built to accommodate the new finishing system. This new system actually starts in the old building where parts from the various fabrication departments are hung on twin conveyors (two separate conveyors are installed side by side).

**The twin conveyors** traveling at approximately 12 ft. per min. rise from this load-on point and pass into the new building through double fire doors. The conveyors then make a 90-degree turn and enter a 5-stage cleaning and phosphatizing machine (Fig. 2). Double tunnels in the machine each have an opening 5 feet wide by 7 feet high to accommodate the many parts which must be processed. The process sequence carried out in each tunnel is as follows:

1. Spray wash with hot alkaline



*". . . have been designed to overcome the problems encountered in heating sludge-forming solutions . . ."*

cleaning solution, 1 minute.
2. Hot water rinse, 1 minute.
3. Spray phosphatize, 1 minute.
4. Cold water spray rinse, 30 seconds.
5. Hot chromic acid spray rinse, 30 seconds (Fig. 3).

**Adequate provision** has been made on each side of the spray sections so that adequate and thorough draining may be obtained.

Gas immersion flues are used to heat the alkaline wash solution in the spray tunnel. Gas heaters are used to heat the phosphatizing solution, the hot water rinse, and the chromic acid rinse solution. These heaters, designated as the Ransohoff Cascade Heater*, have been designed to overcome the problems encountered in heating sludge-forming solutions such as phosphate coating solutions. The heaters are so designed that the solution to be heated is made to circulate from the spray tunnel to the heating chamber. In the heating chamber the solution passes down a series of sloping metal pans and at the same time the heated gases from the gas burner pass down through the same area. Con-

*Patent pending.

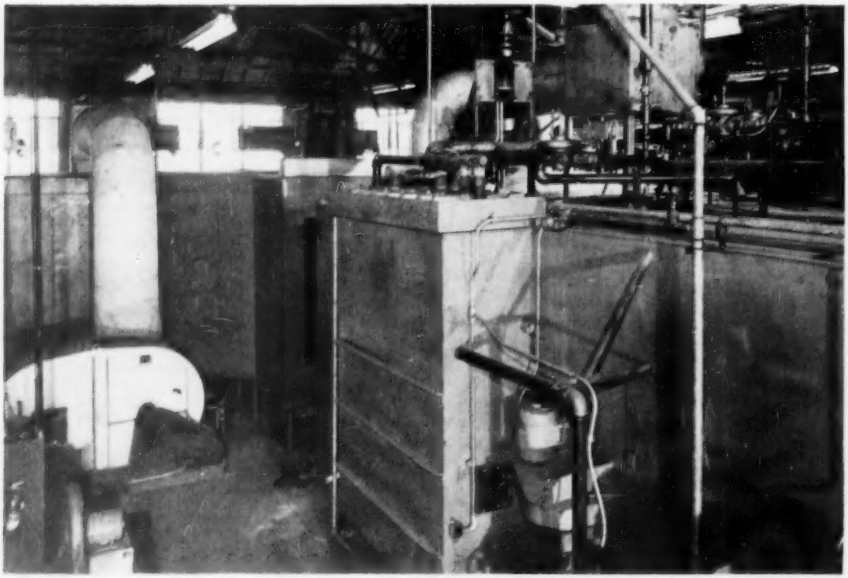


*Fig. 3—Exterior view of one side of the phosphatizing machine showing Ransohoff Cascade Heater installed at the chromic acid rinse stage. Left background of photo shows gas-fired dry-off ovens where phosphatized parts are dried prior to further finishing.*

tact between the flame and hot combustion products is made directly with the solution so that maximum heat transfer can be realized.

Cleaned and phosphatized parts leave the double tunnel phosphate coating machine (Fig. 4) and pass into a gas-fired dry-off oven. During a period of travel of approximately 4-1/3 minutes in this dry-off oven, the parts are thoroughly dried at a temperature of 400 to 450 deg. F.

The two conveyors leave the dry-off oven and are so designed that parts have an opportunity to cool before being transported into one of the two paint application areas. Depending upon the type, shape, and finish specification, parts are either spray painted or processed through a flow coating machine and drain-off tunnel.

One conveyor transports parts through a DeVilbiss water wash spray booth 45 feet long by 8 feet deep by 11 feet high. In this booth, parts may be sprayed with any one of six different paints pumped to the various spray guns through a circulation system installed between the spray booth and the nearby paint mixing room.

**The other conveyor** on which parts to be flow coated are hung is routed through a tandem flow coater. The tunnel through this flow coater is 5 feet wide and 7 feet high. The approach section is 8 feet long and is followed by a 4-foot flow coater and 8-foot drain and drip-off sec-

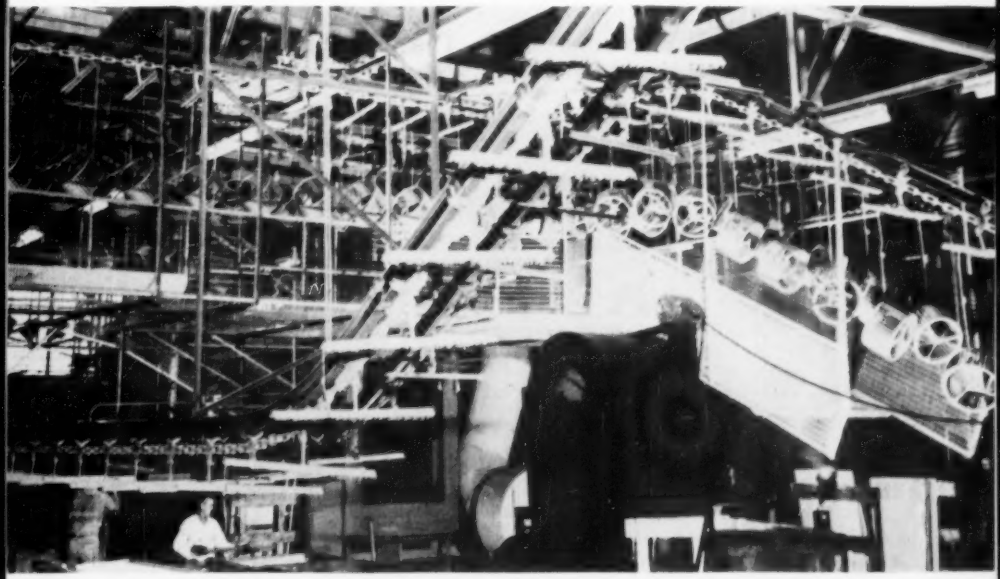


*Fig. 4—In this overall view, the twin conveyors loaded with blower parts are shown descending from the conveyor lubricators (near the roof trusses) to the first floor level of the plant. Here the previously cleaned parts will be flow coated and/or spray painted.*

***"...tandem flow coater provides rapid changeover of colors..."***

tion. The conveyor then continues through a second 8-foot approach, 4-foot flow coater, and 8-foot drain and drip-off section operating alternately but not simultaneously. Fire protection is provided by a $CO_2$ fire extinguishing system.

**Primary functions** of the tandem flow coater are to provide rapid changeover of colors and stand-by equipment in the event of breakdown. The flow coater is used primarily for finish coats. However, it may be used for primer coats where a sprayed finish coat is desired. Paint for the flow coater is pumped through a circulation system from the paint mixing room. Parts leaving the flow coater continue to a drip-off housing or vapor tunnel approximately 180 feet long permitting 15 minutes of paint flow-out before entering the bake oven.

The conveyor leaving the spray booth travels to an elevated position and after approximately 60 feet rejoins the conveyor which routed the flow coated parts through the vapor tunnel. Here both conveyors enter the double 178-foot gas-fired overhead paint bake ovens. Operating temperatures of 450 deg. F. are provided for with an adequate safety factor in the event that higher temperatures are required.

The twin conveyors leaving the paint bake oven travel in an elevated position before they descend to the take off point. Sufficient conveyor travel assures that parts being unloaded will have cooled sufficiently for safe and easy handling. The parts' unloading point is sufficiently close to the conveyor lead-

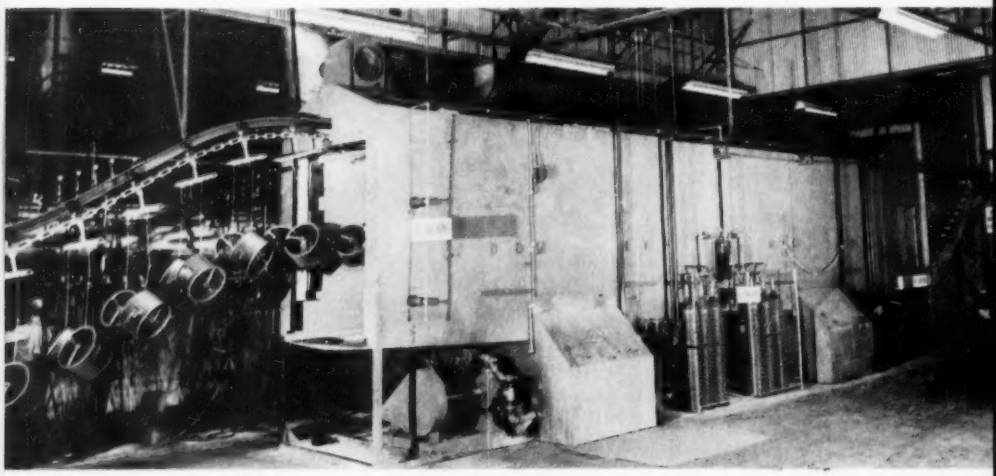


*Fig. 5—Fan parts are being transported into the tandem flow coating machine. Flow coated parts continue through the flow coater and up and into an elevated vapor drain tunnel, the entrance to which may be seen at the extreme right of the photograph.*

ing to the spray booth so that any prime coated parts requiring a spray finish may be transferred rather than unloaded for final assembly.

By means of this new completely integrated automatic finishing system, Utility Appliance Corporation has increased production capacity, provided for more economical operation, and at the same time, ensured that its gas furnaces, heaters, air coolers, and air conditioners will have a high quality finish consistent with industry standards.

★ ★ ★

**"DATA AND DIRECTIONS FOR ELECTROPLATING WITH RHODIUM,"** a handbook of information and guidance published by **Baker & Co., Inc.**, 113 Astor St., Newark, N. J.

The booklet will be sent to anyone who requests it on company letterhead. It has been planned to be of use to electroplaters, production men and designers.

The booklet lists and describes the various applications of rhodium plating.

Designed to help electroplaters and product designers achieve the most effective results, the booklet contains many charts covering special situations, applications and specifications.

Among the new material added to this edition of the booklet is a section devoted to Baker Rhodium Plating Solution No. 221, designed to produce heavier deposits at lower stress, and in a shorter time. Instructions for using it are given, together with suggested applications.

Also new is a section on barrel plating, and a detailed tabulation of the physical properties of metals in the platinum group.

★ ★ ★

**SAFETY FILMS** — The 1956 **National Directory of Safety Films** is now available from the National Safety Council.

The directory provides a compact source of information on films on safety, first aid, fire prevention and civil defense. It describes more than 1,200 films that are available without restriction on distribution. Information includes millimeter, running time, color, year of production and a brief summary of the plot.

Copies of the National Directory of Safety Films may be purchased for $1.00 each from the **National Safety Council**, 425 N. Michigan Ave., Chicago 11, Ill.

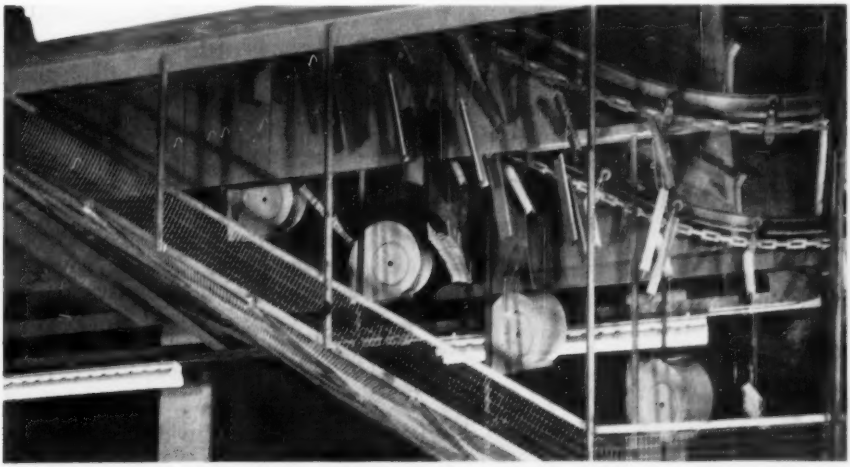


*Fig. 6—Finish baking ovens 178 feet in length are located overhead. This view shows both conveyors, one containing flow coated parts, the other containing spray finished parts, entering baking ovens. (Photos courtesy Utility Appliance Corp. and Ransohoff, Inc.)*

# The Value of Rinse Control in Phosphate Coating Processes

By RICHARD B. STRIBLEY
Phosphate Products Manager
Detrex Corporation

**ARE YOU CONSCIENTIOUS** about controlling your chemical baths, particularly in your phosphate coating process? You are if you run an efficient, profitable plant. To make your operation even more economical control the rinses! Accurate control of the rinse sections can often reduce the cost of chemicals to one-half or even less.

As an example, consider a five-stage immersion phosphate coating process, composed of:

1. Alkaline cleaning tank operated at 8 oz./gal.
2. Water rinse.
3. Immersion phosphate coating bath, 20 total acid points.
4. Water rinse.
5. Acidulated rinse.

**Parts are of such shape** and so handled that one gallon of solution is carried over each minute into the following tank. The alkaline tank is kept at constant level, and at a concentration of 8 oz./gal. by additions of chemicals and water. The phosphate coating tank is kept at a constant level and at 20 total acid points by additions of concentrate and water. The rinse tank following the alkaline cleaning tank has no overflow and no water additions. A comparison, which shows savings in cost of phosphate chemicals for neutralizing alkali carryover when just a little rinse water is used, is given in Table I. These costs may be more than the processing chemicals' cost.

Table I

| Alkali Rinse Overflow Rate | Neutralizing Costs ($.20 per lb.) Phosphate Tank* |
|---|---|
| 0 | $55.40 |
| 1 gal. per min. | $27.70 |
| 2 gal. per min. | $18.47 |
| 3 gal. per min. | $13.85 |

*40 Hours Operation

There are many other related costs involved in an operation such as that described above. If enough alkaline materials are introduced into the phosphate coating bath, even with regular addition to maintain concentration, the bath could be thrown completely out of balance and cease to operate. Excessive amounts of sludge will develop, necessitating more frequent system cleaning. A contaminated coating will probably result, and its quality will definitely decline.

**Probably the best solution** to this problem would be to eliminate or reduce the carryover. Sometimes this cannot be done due to the shape of the work, design of the work racks, and other reasons. Overspray can be particularly troublesome on an automatic conveyorized spray unit if even one nozzle is aimed in the wrong direction. To secure economical operation and solve process problems, the rinse after the cleaning operation must be controlled.

Let us consider a rinse after the phosphate coating bath. This rinse normally is cold and overflowing, and is used only to rinse work directly out of the phosphate coating bath. If such is the case, no trouble is anticipated. However, in many instances lack of floor space for tanks or their cost are reasons for not installing adequate rinsing facilities, and the one tank is used to rinse off residual chemicals from various other operations.

If the rinse after phosphate coating is used for rinsing other chemicals and is neglected and not properly controlled, many difficulties may arise. When the tank is also used to rinse after pickling, it is natural to assume that a concentration of pickling acid would soon develop. If this concentration gets high enough (and a normal day's production will usually be sufficient) the phosphate coating will actually be removed. This problem of an acid-contaminated rinse can prove to be serious and expensive. Even with as little as ½ per cent of sulfuric acid in the rinse, from 50 to 75 per cent of the coating will be removed. For example, if you have to deposit 500 milligrams of phosphate coating per square foot in the phosphate bath in order to end up with 250 milligrams, the cost for phosphate coating chemicals would be doubled.

Sometimes the same tank is used

*"Now I know how the old lady feels when I leave that ring in the bathtub at home."*

**Table II**

| Chromic Acid Spray | | | | | | Chromic Acid Immersion | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F.A. | T.A. | oz./100 Gals. | Temp. | Time | % Loss* | F.A. | T.A. | oz./100 Gals. | Temp. | Time | % Loss |
| 0.4 | 1.5 | 4 | 150°F. | 10 sec. | 6% | 0.4 | 1.5 | 4 | 150°F. | 10 sec. | 0.5% |
| 0.4 | 1.5 | 4 | 150°F. | 30 sec. | 23% | 0.4 | 1.5 | 4 | 150°F. | 30 sec. | 1.5% |
| 1.0 | 3.5 | 9 | 150°F. | 6 sec. | 28% | 1.0 | 3.5 | 9 | 150°F. | 6 sec. | 16.0% |
| 3.0 | 7.1 | 22.5 | 150°F. | 10 sec. | 100% | 3.0 | 7.1 | 22.5 | 150°F. | 10 sec. | 32.0% |

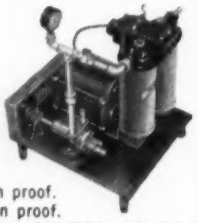
*Original coating weight = 275 milligrams per square foot
(F.A. — Free Acid T.A. — Total Acid)

for rinsing after alkali cleaning and phosphate coating. In this instance, there may not be either acid or alkali, as they neutralize each other, but there is a buildup of salt concentration which will remain on the work when it dries. These salts are detrimental to the paint film, particularly under high humidity conditions, and are a cause of failure of painted parts.

The discussion thus far has been concerned mainly with water rinses and the effect of their contamination on chemical costs and quality. Another rinse in a phosphate coating process that is commonly neglected is the final acidulated rinse containing small amounts of chromic acid and phosphoric acid. Since this bath is so dilute (4 to 8 ounces per 100 gallons) it is often overlooked both in control and in effect on end results.

This final chromic acid rinse has a beneficial effect on the corrosion resistance of a phosphate coated and


**NEW Sethco FILTER PUMP**
double cartridge self-priming
1-3 Gal./Min.



Model **CCGIE-120**—rated 1-3 gals. per min. for continuous filtration of solvents, lacquers, paints and all types of Product Finishing solutions.
**FILTER ASSEMBLY:** Double cartridge equipped with pressure gauge.
**PUMP:** Self-priming gear with relief valve set at 35 p.s.i.
**MOTOR:** ¼ H.P., explosion proof.
**SWITCH:** Manual, explosion proof.
**PANEL:** Bakelite, 14" x 16" x ½" thick; swivel ball bearing, rubber tire casters.
**HOSE:** two 10' lengths, solvent resistant, inlet strainer.
50' Electric Cable.
**DIMENSIONS:** 14" x 16" x 6" high, Wt. 65 lbs.

**Sethco Mfg. Co.**
70-72 Willoughby St., Bklyn. 1, N. Y. • ULster 5-8940

For more data circle **157** on Reader Service Card



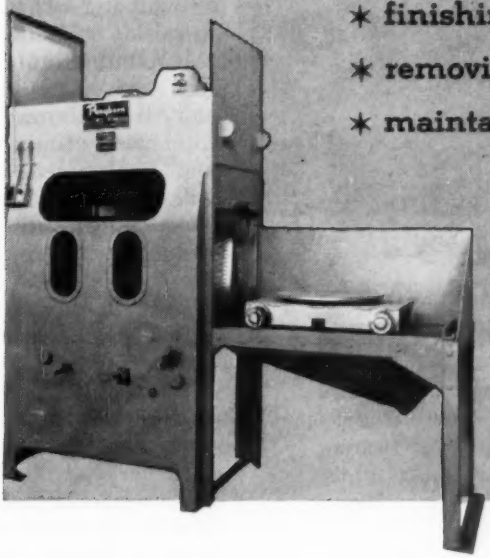
**"WORTHING WITH PROFIT"**

"Your teaching for me on your best understanding course is worthing me with profit . . . I am now a super on the plating department of Trophy Craft Inc.," writes Domingo LaSanta of Puerto Rico. This unique home study course in modern electroplating will likewise prove profitable for you! FREE details. JOSEPH B. KUSHNER, ELECTROPLATING SCHOOL, 115 BROAD ST., STROUDSBURG 2F, PA.

For more data circle **158** on Reader Service Card

# New Pangborn Hydro-Finish

## solves such cleaning problems as:



- ✶ removing heat treat scale
- ✶ finishing threaded sections
- ✶ removing grinding lines
- ✶ maintaining dies and molds
- ✶ preparing surfaces
- ✶ deburring
- ✶ surface finishing
- ✶ improving cutting tool life

Pangborn has redesigned the Hydro-Finish for added efficiency and easier handling. *Originating the use of air jet sluriators to eliminate pumps,* the new Hydro-Finish represents a lower investment as well as a lower maintenance cost. Optional equipment simplifies overall operation. Investigate Pangborn Hydro-Finish now!

For details, send for Bulletin 1403 now! Write PANGBORN CORPORATION, 5000 Pangborn Blvd., Hagerstown, Md. *Manufacturers of Blast Cleaning and Dust Control Equipment.*

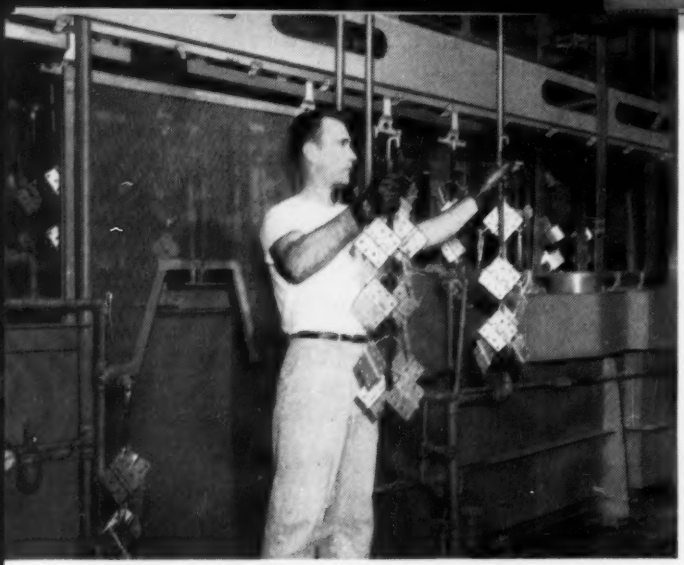
**Pangborn**

**BLAST CLEANS CHEAPER**

For more data circle **159** on Reader Service Card

painted surface, but this beneficial effect occurs only when the chromic acid bath is operated within specific limits. If it is allowed to operate for long periods of time without any additions, the color will still be there, but all of the free acid will be consumed. Without this free acid, chromate and phosphate salts will remain on the work and prove detrimental to the paint finish.

The other extreme is too much chromic acid in the final rinse. With the bath being as dilute as it is, many operators feel that if a little is good, a little more would be better. Not only does too great a concentration lower the corrosion resistance of the final paint finish, but it also removes a considerable amount of the phosphate coating. This leads to inconsistent results, and increases the chemical cost considerably, particularly if a minimum amount of coating weight is required. Table II illustrates the effects of various chromic acid rinse

## PRODUCTION INCREASED— UNIT COSTS LOWERED with UDYLITE AUTOMATIC PLATING MACHINES

Each day, over twenty thousand door hinges are cadmium, copper and brass plated by three Udylite automatic machines owned by C. Hager & Sons Hinge Manufacturing Company, St. Louis, Missouri. Cadmium plating is for protection from rust and corrosion—the copper and brass plating for a gleaming, luxurious finish.

The Hager Company installed these machines five years ago when it was decided to eliminate their hand operations. Production has increased one hundred fifty percent with the Udylite Automatics—the finishes are more uniform—the rejects reduced to practically nil, and as with most Udylite machines, there is very little maintenance.

Have you checked your metal finishing operations lately? If you do plating, anodizing, blackening, or other types of metal finishing in volume, you should investigate the Udylite automatic equipment and Udylite finishing processes. They are known the world over.

THE Udylite CORPORATION DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

For more data circle **160** on Reader Service Card

concentrations on phosphate coated surfaces—both spray and immersion processes.

As shown, the lack of control over the chromic acid rinse cannot only prove very costly, but can completely eliminate the phosphate coating. Notice the short time cycles involved. By increasing the time of contact under similar conditions, even greater losses in coating weight can be expected.

The fact that otherwise conscientious production men still minimize the value of rinsing is shown by daily instances where finishing problems are traced directly to neglected rinses. Almost everyone realizes the importance of correctly controlling a chemical bath, but not enough people know how important the rinses can be. If only a minimum amount of time is spent in controlling the rinses, there will undoubtedly be an immediate improvement in the quality of the production, and this improvement can be effected at reduced cost.

**UDYLITE TEAMS WITH MacDERMID TO SERVE YOU FROM *18* STOCK POINTS**

**FAST DELIVERY FOR METAL CLEANERS**

MacDermid metal cleaners and specialties can be shipped to you from any of the eighteen warehouses located strategically throughout the United States.

This means you can keep your inventories down, reduce freight costs and enjoy faster deliveries from nearby warehouses.

In addition to Udylite research, analysis and testing laboratories, you can benefit by two MacDermid specialized laboratories. You have at your call the combined skill and know-how of forty-five Udylite field service men and twelve technically trained MacDermid representatives.

You are served with a complete line of metal cleaners for all base metals and a variety of well known MacDermid specialties.

On any metal finishing problem check your Udylite Representative or write direct.

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

For more data circle **161** on Reader Service Card

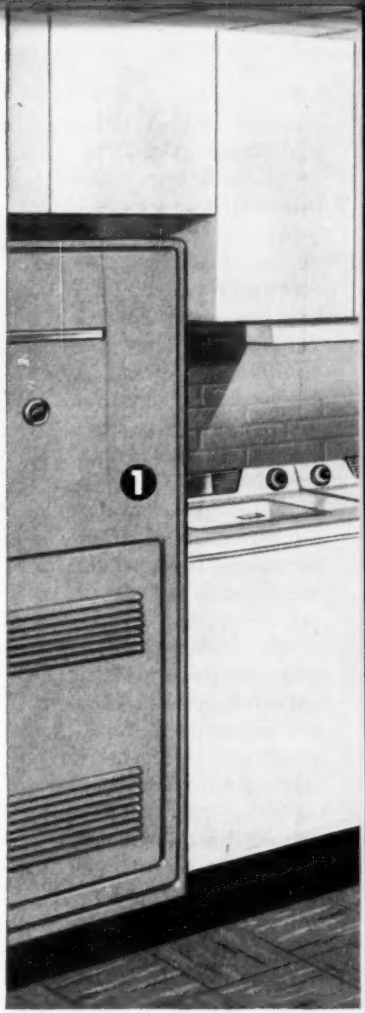
# NUBELITE

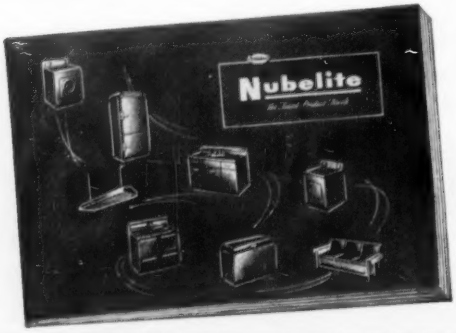
## FINISHES

### formulated to meet the service requirements of your products!

NUBELITE finish coatings are custom-made in Glidden laboratories to provide the specific combination of resistance factors and film properties required for improved product service life. That's why a white or colored NUBELITE finish on your product is positive assurance of lifetime beauty and protection.

All Glidden primers and enamels, to produce either smooth or textured coatings on any metal, are adaptable to present finishing methods and equipment. Write for complete finishing data plus information on Color Consultation and other Glidden services which are available without cost or obligation.






Address Dept. PR-856 (company letterhead, please), for your copy of this attractive, informative book which completely describes NUBELITE uses and applications.

1. impact and abrasion resistance
2. color and gloss retention
3. heat, alkali and corrosion resistance
4. moisture and corrosion resistance
5. heat and grease resistance
6. humidity and stain resistance
7. light reflectance

QUALITY Glidden PRODUCTS

**INDUSTRIAL FINISHES DIVISION**

**11005 MADISON AVENUE CLEVELAND 2, OHIO**

**SALES OFFICES AND FACTORIES**

**San Francisco, Los Angeles, Chicago (Nubian Division—1855 N. Leclaire Ave.), Minneapolis, St. Louis, New Orleans, Cleveland, Atlanta, Reading. Canada: Toronto and Montreal.**

For more data circle **162** on Reader Service Card

# finishing clinic

***Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.***

## Dirt in Spray Booths

**Question:** *We are interested in obtaining information which might be helpful in reducing the number of rejects due to dirt in paint spray booths.*

*We presume that many articles have been written on the subject of ways and means of preventing dirt in paint spray booths and we are wondering if you would furnish us tear sheets on any articles of this nature you have printed in the past.*

*Any information you can furnish us will be greatly appreciated.*

*A. L. N.*

**Answer:** The elimination of factory dirt from paint spray booths is a serious matter with almost every manufacturing plant which applies paint—particularly light colored or white paint. The standard method of eliminating factory dirt from paint spray booths is to enclose the paint spray booths and put the entire area under 1 to 1½ inches (water) of positive air pressure. This is done, of course, by introducing filtered air into the booth.

Systems of that type are, of course, expensive, but they represent the only completely satisfactory answer.

There are certain other methods which may be used to reduce the dirt problem without completely solving it. One method concerns the design of the spray booth itself. From a standpoint of dirt particle activity only, the spray booth should be designed so that it removes the proper unit volume of air per minute at as low an air velocity as possible. This will reduce dirt particle activity to some degree.

Various sweeping compounds may be applied to the floor in the vicinity of the spray booth so that the dirt and dust on the floor is kept moist and held on the floor. Thus it will not be blown about into the spray booths.

The use of various spray booth coatings on the walls of the spray booths themselves are useful in handling overspray paint and normally do not contribute much to the elimination of dirt.

You may be interested in seeing the article, "The Significance of Air Velocity in Ventilation Design," published in the June, 1953 issue of PRODUCTS FINISHING.

★ ★ ★

## Fume Combustion

**Question:** *I noted with interest your article on "Burning Solvent Fumes" which I read in the "Finishing Clinic" section of the May 1956 issue of PRODUCTS FINISHING.*

*I would appreciate any information you can provide with regard to prod-*

*ucts or processes for converting solvent fumes into useful heat, or any sources of information on these products.*

*In our plant, we exhaust the paint solvent fumes from our four prime and color paint ovens to the atmosphere. Any practical utilization of the heat that could be generated by the destruction of these paint fumes for drying or baking or for plant heating could possibly afford substantial savings.*

*G. G. G.*

**Answer:** In answer to your question regarding products or processes for converting solvent fumes into useful heat, we are referring you to a manufacturer of units used for this purpose. These units contain catalysts which make possible the oxidation of the solvent fumes with a resultant release of heat thus made available for plant use.

★ ★ ★

### Tin Brightener

**Question:** *Please advise if a brightener is available for electroplated tin.*

*J. T.*

**Answer:** For information on brighteners for electroplated tin, we are referring you to several manufacturers.

A common practice for brightening tin which has been applied by plating or hot dipping is to immerse the tin in hot oil to obtain surface flow of the deposited metal.

★ ★ ★

### Barrel Lead Plating

**Question:** *we barrel lead plate small threaded brass and steel parts. It has been our practice to tin plate these parts first. In an effort to reduce our costs, the question has arisen: Must we tin plate first, or can we plate directly on these parts satisfactorily?*

*Our preplating cycle consists of an alkaline soak cleaner, a rinse, sulfuric acid (10%) dip, and a rinse.*

*We use the lead fluoborate solution and are interested in obtaining all the advantages of this solution.*

*We will appreciate any help that you may be able to give us on this problem.*

*A. J. C.*

**Answer:** As far as plating practice is concerned, there does not seem to be a need for tin plating your products prior to lead plating. However, there may be other considerations such as unsatisfactory alloy formation (in the brass parts), or other considerations which may involve the plating solutions used. A tin strike may be helpful.

We are referring your inquiry to suppliers of lead fluoborate solutions, and they should be able to advise you regarding the use of these solutions.

★ ★ ★

### Polishing Welds

**Question:** *I am making a comprehensive study of a company engaged in the manufacture of custom food service equipment from sheet stainless steel. After heliarc welding the 18-8 type 302 stainless steel sheets into their final form as sinks, counters, tables, hoods and cabinets, the company finds that a great amount of time is being spent in grinding and polishing the welds to blend them in, in removing scratches, and in graining and bringing the whole item to a standard No. 4 finish.*

*In this regard, I would appreciate any booklets or references which you may suggest on grits, speeds and techniques for attaining the No. 4 finish.*

*S. M. Z.*

**Answer:** For booklets and information on weld finishing technique, we are referring you to several manufacturers and suppliers of abrasive materials.

# Finishing Clinic

## Spray Equipment

**Question:** *Would you please advise by return mail where we could locate trade journals or books that will give us detailed information concerning the operations of automatic, semi-automatic, and conventional type spray painting equipment?*

*J. T. H.*

**Answer:** We are forwarding to you the names and addresses of companies that manufacture all kinds of spray equipment and can provide you with catalogs explaining the operation of the equipment.

We are enclosing reprints and tear sheets of the following articles published in PRODUCTS FINISHING which relate to spraying:

"Parts Spray Finished on 3 Conveyors in Compact Finishing Setup," "Steam Spray Painting Refrigerator Cabinets," "Refrigerator Finishing at Appliance Park," "Finishing Unit Features Versatility and Speed," "Finishing Refrigerators With Hot Sprayed Enamel," and "How the Paint Warmer Aids Finish Application and Quality."

★ ★ ★

## Bright Finish for Steel

**Question:** *We wonder if you can help us find a process or, if not a process, a type of steel which offers a bright, chrome-like shine without the necessity of expensive chrome plating, or use of chrome steel. We require this on a consumer item using wire. The depth of the finish is immaterial.*

*J. L.*

**Answer:** You may wish to consider several possibilities. There is available aluminized steel which is steel coated with a thin film of aluminum.

It is quite possible that you may find a bright zinc plate on your steel products completely satisfactory. We are referring you to several manufacturers from whom you may obtain information concerning zinc plating solutions and finishing methods.

Galvanized steel or steel coated with a comparatively thick film of zinc, prepared by dipping the steel in molten zinc has long been used in industry. The exterior surface of this type of finish is perhaps not as attractive as your products require. Actually, the shape and use of your products will determine the proper material and finishing process to be used.

★ ★ ★

## Paint Adhesion

**Question:** *We manufacture hair pins and have been experimenting with a corrosion resistant pin manufactured from Bethanized "electro-galvanized" wire. To be a salable item, these pins must be finished in black, bronze, and clear. So far, we have been able to find a bronze and a clear that work fairly satisfactorily, but have not been able to find a black organic finish that will adhere to the zinc coated wire. Do you have any suggestions as to a suitable material?*

*V. W.*

**Answer:** To secure good adherence on zinc or cadmium plate, it is most helpful to use a chromate dip prior to painting. We are referring you to several manufacturers of chromate dips.

Having included the chromate dip in your process sequence, it is our opinion that you will have no further difficulty with paint adherence. However, if you wish to investigate additional sources of black paint, we are referring you to several manufacturers.



For more data on advertisement on opposite page circle **163** on Reader Service Card

Shell Chemical announces—

# EAK

## ethyl amyl ketone

**available now in** **tank car and tank truck** **quantities!**

### New high-boiling active solvent for nitrocellulose and vinyl lacquers

EAK holds more nitrocellulose in solution at a given viscosity than any other high boiler commonly used.

In formulating a high solids lacquer, EAK will give you a low viscosity solution with exceptional diluent tolerance. EAK imparts superior properties of blush resistance, gloss and flow-out to coatings for wood or metal.

- **For automotive lacquers and thinners, EAK reduces the amount of rubbing, provides excellent gloss, thus adding to showroom appeal.**
- **For furniture lacquers, hot or cold spray, EAK provides good flow-out, leveling, blush resistance and freedom from bubbling.**
- **EAK has proved outstanding in making industrial maintenance vinyl lacquers, because of its high solvent power.**
- **In silk-screen printing lacquers, EAK gives freedom from screen-clogging.**

EAK has now taken its place in the family of Shell quality lacquer solvents that includes MEK, MIBK, and acetone. *Write for technical bulletins for many suggested formulations.*

**SHELL CHEMICAL CORPORATION**

**CHEMICAL SALES DIVISION, 380 Madison Avenue, New York 17, New York**

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver

# COMPLET

## STRAIGHT-LINE PRODUCTION ON THE ROOF

. . . the **EXPERIENCE** that goes into the **PLANNING** and **ENGINEERING** of **MAHON EQUIPMENT** is the item of **GREATEST VALUE to YOU!**

Mahon Oven Control Cabinet, which houses Temperature Recorder, Air Flow Switches and other Safety Control Devices, is shown at left. Mahon Oven Heating Unit appears in foreground.

Mahon Seven-Stage Metal Cleaning and Rust Proofing Machine installed in the Self-Housed Mahon Finishing System illustrated above. Ample space is provided for attendant on operating side.

# Finishing SYSTEMS

## . . . for ENAMELS • LACQUER • PAINT • VARNISH

Above is the 700-Foot Long Self-Housed Mahon Finishing System Installed on the Roof of the Whirlpool-Seeger Corporation's Marion Division Plant. Much of the housing in this installation is an integral part of the Finishing Equipment.

## Are YOU Pinched for Space Inside?

## . . . there's LOTS of SPACE ON THE ROOF!

Here's a typical example of straight-line finishing production unfettered by restrictions normally encountered inside manufacturing plants. This Finishing System was planned, engineered and built by Mahon on the roof of the Whirlpool-Seeger Corporation's Marion Division Plant, Marion, Ohio . . . it was built on the roof because suitable space inside the plant was not available. In the 700-foot long enclosure, which is permanent construction, are housed a Seven-Stage Metal Cleaning and Rust Proofing Machine, a Dry-Off Oven, a Cooling Tunnel, a Flow-Coater and Vapor Conditioning Chamber, Reinforcing Booth and Filtered Air Supply System. The Finish Baking Oven, which was already in place, was rebuilt by Mahon with three new Heating Systems. This is a Mahon solution of a problem confronting one manufacturer. If you have a finishing problem, or are contemplating new finishing equipment—for either Electrostatic Coating, Spray Painting, Flow-Coating or Dip-Coating —you, too, will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements. No matter what your finishing job may be, you'll find that Mahon equipment will serve you better . . . because, Mahon equipment is engineered better and built better for more economical operation over a longer period of time. You can rely on Mahon to do the complete job on one contract—undivided responsibility for the entire system insures proper coordination, and safeguards you against complications which may upset your production schedules. See Mahon's Insert in Sweet's Plant Engineering File for information, or write for Catalog A-656.

**THE R. C. MAHON COMPANY • Detroit 34, Mich. • New York 17, N. Y. • Chicago 4, Ill.**

Engineers and Manufacturers of Metal Cleaning and Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Spray Booths, Flow Coaters and Dip Coaters, Drying and Baking Ovens, and Complete Conveyorized Finishing Systems.

# MAHON

Dr. C. Fred Gurnham
Head, Dept. of Chemical Engineering
Michigan State Univ.

SPOTLIGHTING FINISHING PROGRESS

## Automation in the Plating Industry

**What is automation?** The word itself is relatively new, but it is certainly in common use today. Definitions, however, are many and varied—from the viewpoints of engineering, of economics, of humanitarianism, or of philosophy. Let us choose a definition, and then examine the place of automation in the plating industry. Electroplaters were pioneers in the utilization of automation principles, and further progress and new applications are reported frequently.

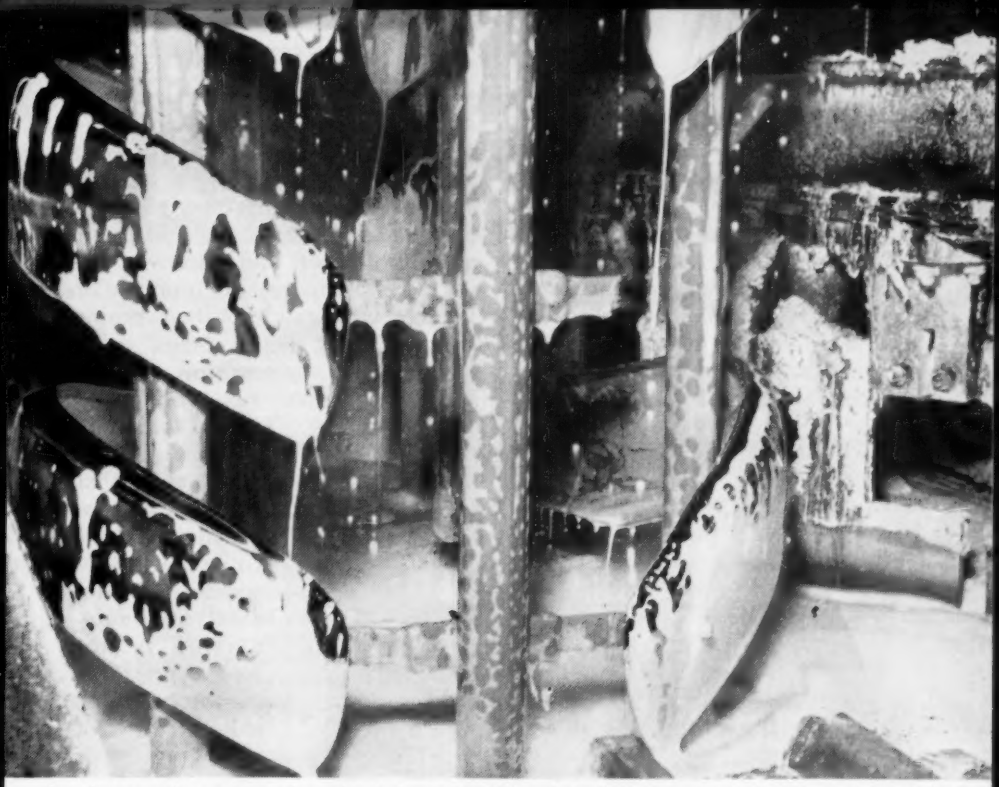
"Automation — Engineering for Tomorrow," was the theme of Michigan State University's Centennial Symposium of the College of Engineering. The principle addresses of the symposium have been published in a booklet that is currently available on request.* In the opening address, R. W. Bolz, editor of *Automation Magazine*, defined automation in broad terms as: "the manufacturing, processing, or performing of services as automatically as economics permit or demand."

Automation, then, is not merely push-button engineering nor the application of electronic instruments to the control of manufacturing processes. These are included in automation, but of equal importance is the economics of automatic processing in comparison with non-automatic or partially automatic operations.

**Labor**

The question often arises: What happens to the workman when an industry is automated? Are we approaching the workerless plant that

* Address Engineering Experiment Station, Michigan State University, East Lansing, Michigan.



**Auto bumper wings** get fast, thorough stripping in Dow Sodium Orthosilicate to remove buffing compound prior to final chrome-plating. Same effective cleaning compound is used at earlier step in operation, stripping bonder lubrication before bumper is copper-plated.

# DOW SODIUM ORTHOSILICATE

## strips buffing compounds, other tough contaminants with real speed

Parts reach your cleaning operation carrying heavy residues of buffing or drawing compounds? Strip them good and clean . . . and do it *faster* . . . with high-powered Dow Sodium Orthosilicate metal cleaner.

Dow Sodium Orthosilicate is built and balanced to deliver low-cost, reject-free runs on almost any type of metal part you'll handle. High acid capacity, high pH . . . Dow Sodium Orthosilicate removes oils, fats and waxes with uniform economy whether your cleaning is dip, soak or electrolytic. The extremely high electrical conductivity of Dow Sodium Orthosilicate solutions permits high current density *without* excessive voltage.

Check your present stripper against these points: ready emulsification, no redeposition, fewer rejects, lowered cost per run. Something lacking? Dow Sodium Orthosilicate should do it better. Get that order in *today*. THE DOW CHEMICAL COMPANY, Dept. AL 761K-1, Midland, Michigan.

*you can depend on* DOW CHEMICALS

DOW

For more data circle **165** on Reader Service Card

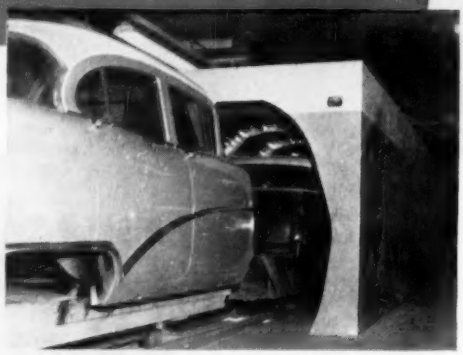
is sometimes predicted? History, including the progress of recent years, shows that labor has nothing to fear from automation. Instead, jobs become more plentiful, and of higher grade. Automatic plants require fewer low-grade and menial jobs, less carrying and hauling, less back-breaking work, but they also need more machine operators, more mechanics and technicians to repair and adjust the machines, and more engineers all through the industry. With automation, there is an upgrading of labor, and improved demand for the increasing numbers of laborers who can use their brains instead of only their muscles.

**Present-Day Automation**

W. R. G. Baker, vice president of the General Electric Company, and other speakers at the Michigan State University symposium, emphasized that automation is not just a promise for the future. It is here now. Not every process is fully automated, and many never will be—we have mentioned above that the degree of automation must be based on sound economic principles, which may call for full automation or no automation at all, or any degree of automation in between. In the plating industry, so-called full automatic machines have been widely adopted, but there will


LEADING AUTO MANUFACTURERS INSTALL CLEPCO QUARTZ OVENS

Find CLEPCO Quartz Paint Ovens require half the floor space and half the KW input of infra-red bulb ovens.



HERE'S WHY...

CLEPCO Quartz Paint Ovens are based on the use of special CLEPCO Quartz Heaters designed to emit that part of the heat spectrum most readily absorbed by paints.

Another major auto manufacturer reports that CLEPCO Paint Ovens are lower in original cost as well as in operating costs than the conventional gas fired convection ovens previously in use.

CLEPCO'S Complete Research Facilities are at your service to determine the most efficient quartz oven for your requirements.

SEND FOR COMPLETE INFORMATION

THE CLEVELAND PROCESS COMPANY

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# CHICAGO RUBBER makes them all

The favorite for many years—cuts your production costs like magic—increases belt life—you will benefit with better quality output when you use the R54.

**CONTACT WHEELS**
**for Abrasive Belt Applications**

The "Bonus Boost" wheels. Cosmo Expanders, made in a wide variety of sizes, will give your shop advantages you never dreamed of. Write for literature—find out about this slotted rubber wheel that "goes to work in a jiffy."

**EXPANDING WHEELS**
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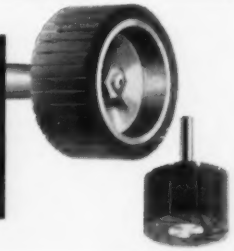

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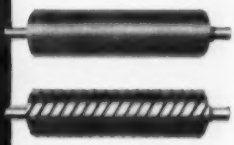

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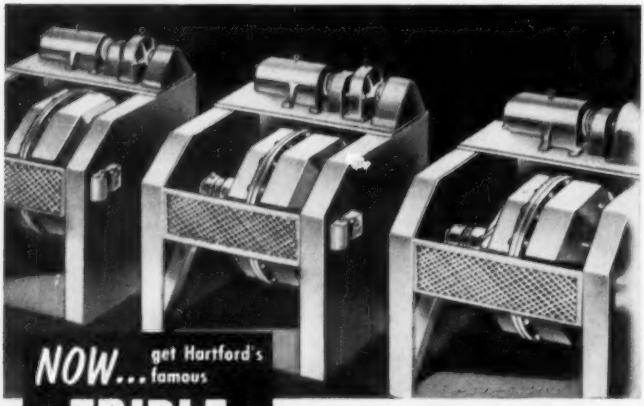
always be special operations or short runs that call for manual handling. Automation in the metal finishing industries, as in other fields, is increasing and will increase in the future, but it is already with us to a considerable degree.

### The Plating Industry

It was pointed out earlier that the American electroplating industry was one of the pioneers in automatic manufacturing, even though the word "automation" was not in common use until recently. The development of semi-automatic and automatic plating machines has eliminated much heavy labor from plating operations, and has made possible the plating of parts too large and too heavy to be handled manually. The repetition of operations by automatic machinery has also led to greater uniformity and improved quality.

Automatic process control is another phase of automation that is extensively used by electroplaters. Solution level controllers and temperature regulators have been common for many years, and are indispensible to most plating operations. Control of pH and other solution variables is becoming increasingly popular, and of course regulation of the electric voltage and current, especially with such complexities as periodic current reversal, requires auto-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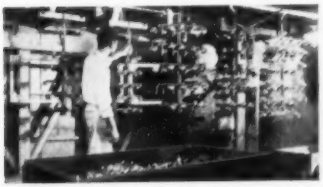

"It paid us to get advice from Pennsalt," says George Long, President of Aetna Electroplating, Philadelphia.

"By talking *results, properties, costs* of chemical cleaners with our Pennsalt specialist, we were able to reduce rejects from our new Udylite automatic plating machine to practically nothing. We now turn out 165 racks of quality work per hour—using less chemicals to do more work!"

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mation. Continuous purification of plating solutions, by carbon treatment, filtration, dummy plating, and other techniques can be handled with convenience by automatic devices.

The automation practices at National Lock and Oldsmobile will be summarized here.

**National Lock Company**

Leonard E. Weeg, superintendent of the Finishing Division, has described National Lock Company's automated electroplating installation. Fully automatic features include conveying, loading and unloading, by-passing, and stripping. The machine is used to plate parts of various size and design, including refrigerator, cabinet, and stove hardware, and various types of furniture trim (Fig. 1).

The copper, nickel, and chromium plating operations are carried out automatically, and all operations can be run in sequence or any one or two can be omitted. Plating cycles and immersion times can be varied easily, and it is common practice to make alterations several times in a working day as the type of work changes.

Automatic transfer mechanisms (Fig. 2) load and unload racks between the plating machine and an auxiliary racking conveyor. Transfers are synchronized to occur only during the down position of the plating machine, and normally deliver one rack to and remove one rack from the plating machine every 38 seconds.

Automatic by-passing of any part or parts of the plating cycle is accomplished by flipper mechanisms located at each tank that may be by-passed. The rack then stays aloft, and is conveyed over the specified tank instead of through it.

Subsequent to unracking after

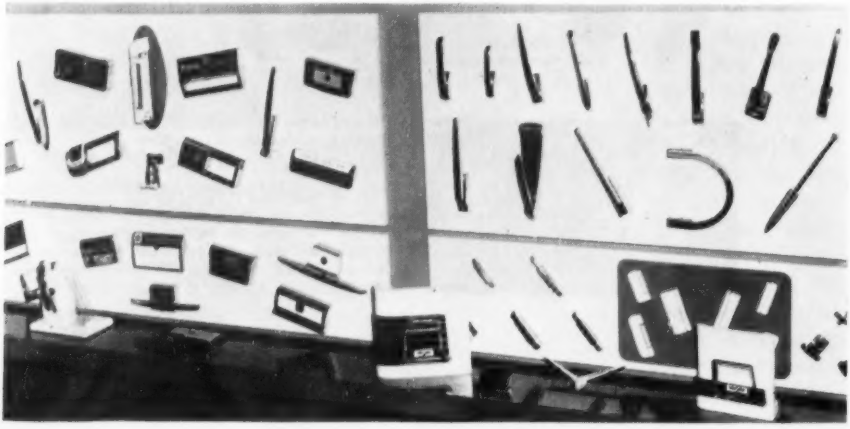
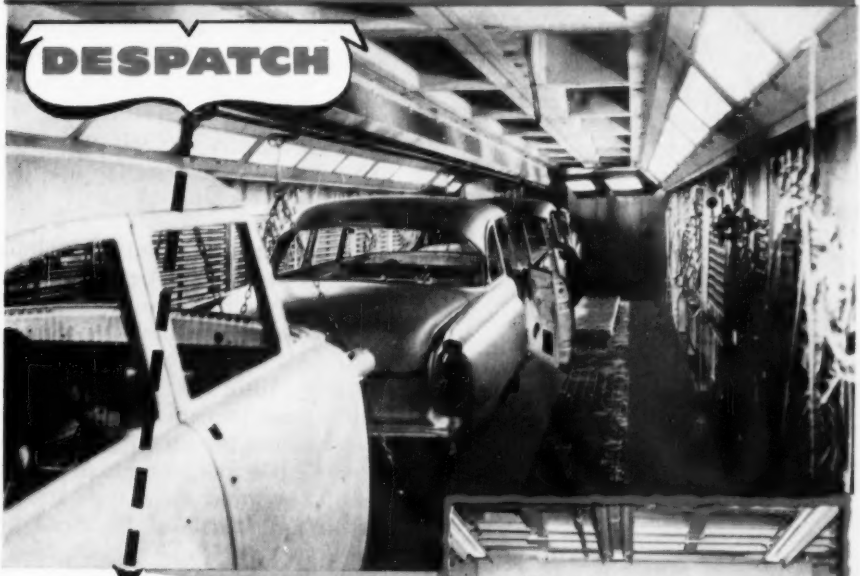


*Fig. 1—A display of some of the 2,500 different parts being plated automatically in National Lock's plant. Company is world's largest manufacturer of die-cast refrigeration hardware.*

# Developing New Paint Spray Technique

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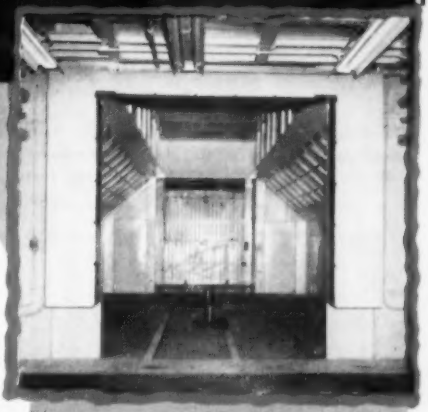

Interior view of Despatch down draft booth showing down draft air flow, also walk area for worker and convenient positions of spray hose.

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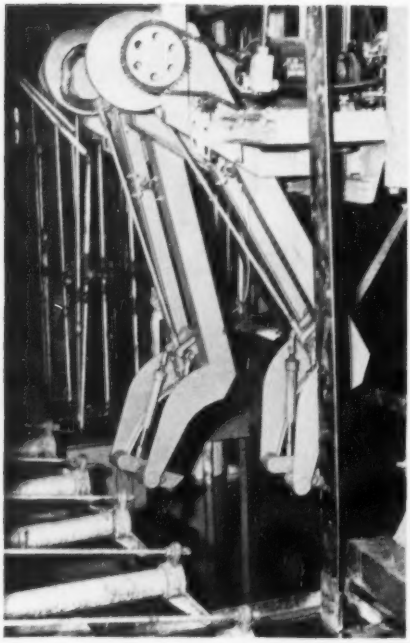

*Fig. 2—Automatic conveyor loading and unloading mechanisms (center). A view from the plating conveyor. (Photos courtesy Hanson-Van Winkle-Munning Co., Matawan, New Jersey.)*

chromium plating, the racks are electrolytically stripped of chromium deposits. This prevents contamination of the copper and nickel solutions by chromium, and eliminates reracking between nickel and chromium plating.

**Automatic Plating of Bumper Bars**

The bumper bar plating installation at Oldsmobile's Lansing, Michigan plant, is highly automated, primarily because automatic equipment provides a necessary production tool. Automatic loading and unloading mechanisms, for example, are indispensible for racks weighing nearly 1,000 pounds when loaded, for lifts as great as 10 feet, and for production speeds of 20 racks per hour.

In most plating conveyors, the work moves horizontally, either continuously or intermittently, through a long tank. It is difficult, in such a system, to provide the conforming anodes that are necessary for controlled plating of large parts. Conforming anodes are adapted better to manual operation, where the plating rack is lowered into a fixed position in the tank, and left there for the required time. In the Oldsmobile installation, this principle is employed but the handling of racks is fully automated instead of hand-operated.

★ ★ ★

*Fig. 3—A view of the plating conveyor and tanks at National Lock. Racks in the first tank are completing the copper plating cycle. Rack in the next tank is being rinsed. Those in the background of photo are being nickel plated.*

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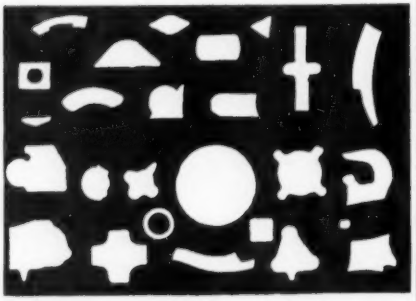
Racks loaded with bumpers are received from the pretreatment cycle on a fixed time cycle, and are lowered into one of 24 copper plating cells. These are arranged in six plating tanks of four cells or four positions each. Selection of an available cell is made automatically, and the rack is lowered into place and left there for 60 minutes. When the plating time is complete, the rack is lifted and conveyed, completely automatically, to a reclaim rinse and other rinses.

Similar installations provide for nickel plating, with ten plating cells and a 24-minute cycle, and for chromium plating, with three cells and about 2½ minutes plating time. Between the copper, nickel, and chromium plating units, the bumper bars are handled by auxiliary conveyors, which provide other operations such as buffing after the copper plating, re-racking onto smaller racks for chromium plating, and all the necessary pretreatment and after-treatment operations associated with each type of plating.

Automatic loading and unloading of plating machines is a relatively new idea, but it is spreading rapidly. It is economically desirable, and it is almost a necessity from the viewpoint of high-speed handling of heavy pieces. The Hanson-Van Winkle-Munning loader works with a transfer mechanism which moves the racks from auxiliary conveyor to plating machine, or the reverse.

Special provision has been made in the Oldsmobile machine for advanced pickup and delayed setdown. During pretreatment for copper plating, for example, the racks are picked up early from the acid etch tank by a separately-actuated hydraulic mechanism which can be controlled by an adjustable timer. Similarly, delayed setdown is provided during the cathodic etch prior to chromium plating.

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# Practical Applications of Modern Products

## Uses for Rigid Polyvinyl Chloride in Finishing Shops

By HERMAN STARBUCK
S & C Manufacturing Company

**Rigid Polyvinyl Chloride (P.V.C.)** is being used more and more as a material of construction where resistance to chemicals and corrosion in general is required. Rigid P.V.C. is a thermoplastic material and differs from other thermoplastics in that it contains no plasticizer or binder and is rigid. This type of formulation makes it possible to obtain the full chemical resistance characteristics of polyvinyl chloride.

P.V.C. is inert to almost all acids in any concentration or combination, all of the alkalies, and all other chemicals except high hydrocarbon solvents, ketones, and esters. P.V.C. does not age and is not affected by sunlight. Rigid P.V.C. may be hot gas welded. A weld strength of about 90 per cent of the strength of the parent material is obtained. The material may also be solvent welded, bolted, or riveted together. It may be heat formed into various shapes. It is reported that Rigid P.V.C. has been in service in Germany for 20 years and still shows no sign of deterioration.

Unplasticized Rigid P.V.C. is available in standard sheet sizes of 1/16 to 2-inch thickness, and pipe in stand-

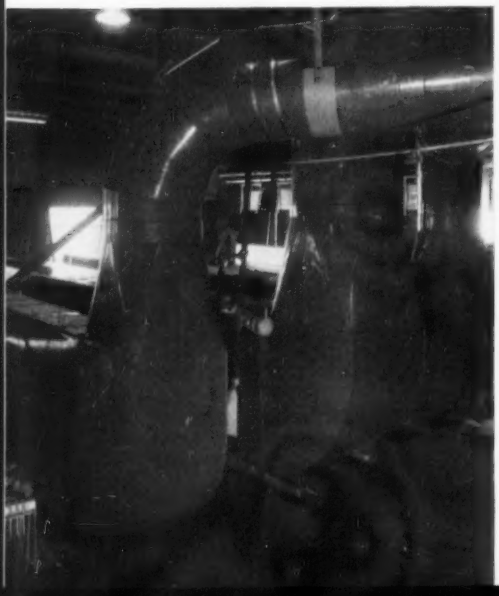


*Fig. 1—View of fume exhaust ducts showing rigid polyvinyl chloride transition elbows.*

*". . . Rigid P.V.C. has been in service in Germany for 20 years and still shows no sign of deterioration."*

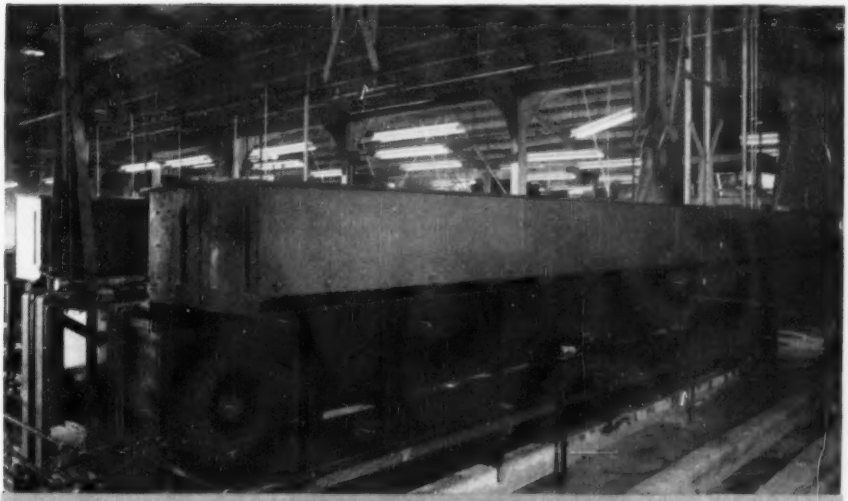
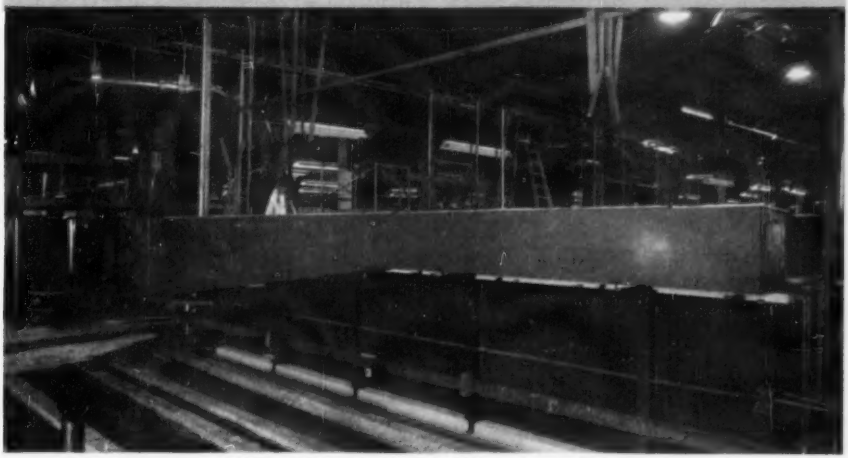


*Fig. 2—These exhaust ducts are 25 feet long. Exhaust opening can be varied to secure desired air velocity. There is an inspection panel at the end of each hood (left foreground).*

*Fig. 3 (Below)—View of the back of one of the exhaust hoods shown in Fig. 2 illustrates the manner in which the hood cross-sectional area is increased so as to maintain uniform air velocity all along the intake side of the duct. Even bolts and nuts used here are rigid P.V.C.*



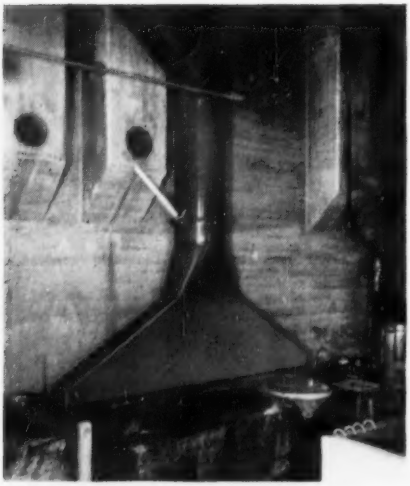


*Fig. 4—This 6-foot long exhaust hood is installed to remove corrosive fumes from an acid pickling and bright dipping operation. The hood connects to a 16-inch diameter duct.*

## Practical Applications

ard I P S size schedules from ¼ to 8 inches. Both solvent welded and threaded fittings are obtainable. The plastic material is light in weight, being ½ the weight of aluminum. Its tensile strength is approximately 8,000 p. s.i. at room temperature. This characteristic of Rigid P.V.C. makes it a practical material for use in the construction of exhaust hoods, fume ducts, exhaust blowers, acid fume washers, tanks, and other products used in a finishing shop. The material may be welded or formed even after it has been in use for some time. Thus, changes in equipment may be made, or mechanical damage repaired with a minimum of inconvenience.

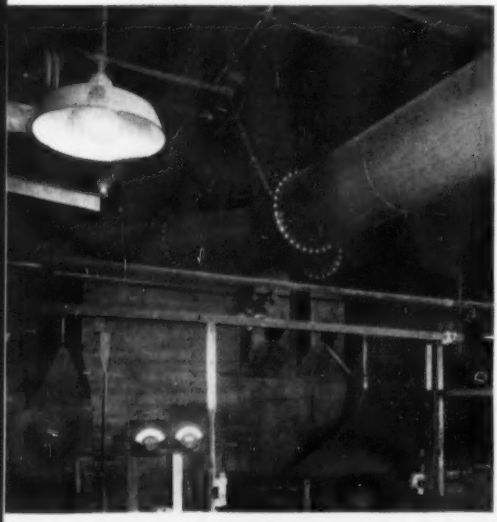


*Fig. 5—Overall view showing how exhaust duct (Fig. 4) is connected to another similar fume hood. Both are connected to a 24-inch diameter duct leading to an exhaust fan.*

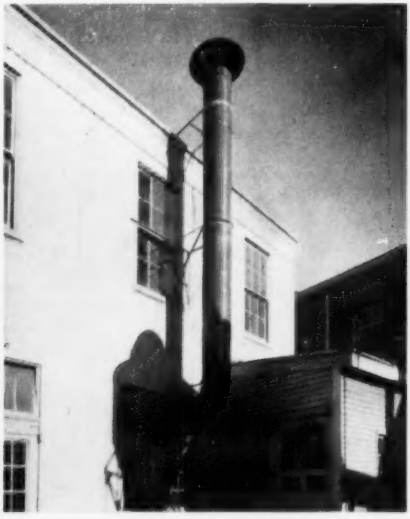


*Fig. 6—Completing the installation is the 24-inch diameter exhaust stack and rain hood mounted on the side of the building. Fan is located just inside the building.*

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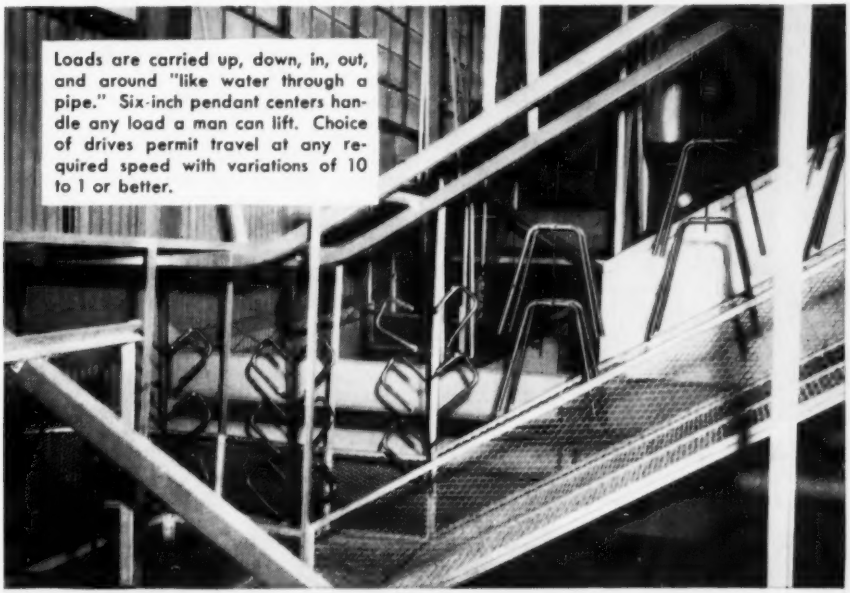

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## Practical Applications

*Fig. 7—Rigid polyvinyl chloride was used to make this section of a spray pickling tunnel installed in porcelain enameling plant.*

Figures 1 to 3 illustrate an installation of duct and fume hoods in a shop performing anodizing of aluminum. The intake hoods along the tanks are 25 feet long and are designed to carry from 6,000 to 8,000 c.f.m. of exhaust air and fumes. As can be noted from Fig. 3, two 24-inch diameter ducts, each carrying 6,000 c.f.m., are joined together in a "Y" section to form a 30-inch duct through which the exhaust is taken to the exhaust blower and then on to the outside air. Of interest is the use of transition elbows in connecting round 90 deg. elbows with square duct ends. The bolts and nuts used in connecting the elbows to the hoods are also made of P.V.C. The bottoms of the transition elbows have pipe connections welded into the low points to facilitate draining.

Figures 4 to 6 picture the various elements making up the complete P.V.C. fume exhaust system for removing fumes from acid tanks used in pickling and bright dipping brass and steel parts. The Rigid P.V.C. installation will require no painting.

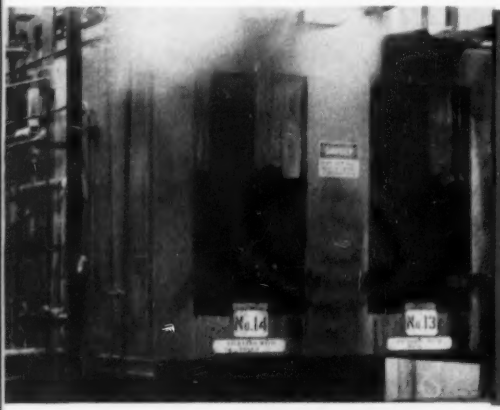


*Fig. 8—View of entrance to the spray pickling tunnel shows general design and construction features which must be duplicated with Rigid P.V.C. in the section of the machine where the acid spray is being used.*

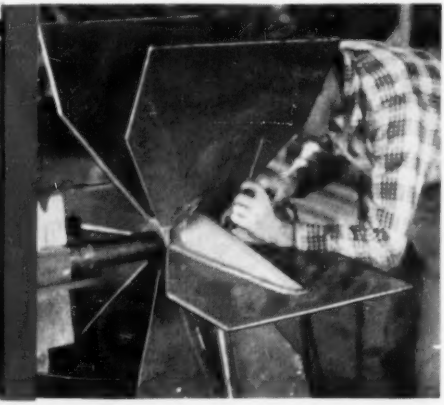

*Fig. 9—Steel exhaust fan blade assembly is being covered with rigid polyvinyl chloride. Blade width is 15 inches; fan diameter is 42 inches; the fan is designed to operate at a speed of 600 revolutions per minute.*

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**PROMAT** DIVISION – POOR AND COMPANY

851 SOUTH MARKET STREET, WAUKEGAN, ILLINOIS

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## Practical Applications

Figure 7 shows a section of a spray pickling machine constructed of Rigid P.V.C. This section is 8 feet high, 10 feet long, and 10 feet wide. The spray pickling machine is used to prepare stamped and formed metal panels for porcelain enameling. A solution of sulfuric acid at a temperature of 150 deg. F. is sprayed continuously inside this section of the tunnel. The pickling machine is constructed in the form of a double tunnel with a vertical partition of P.V.C. sheet which makes each tunnel approximately 5 feet wide by 8 feet high. The tunnel is constructed so that maintenance men can walk through the entire machine for inspection and necessary repairs. Figure 8 is a view of the entrance to the spray pickling machine showing the double tunnel construction.

Parts requiring structural characteristics exceeding those of P.V.C. may be formed from steel and then covered with Rigid P.V.C. sheets. Figure 9 shows the rotor of a large exhaust fan being protected with such a covering.

Not only is Rigid P.V.C. useful as a material of construction for ducts, fume hoods, and other products of that group, but it may also be used in the manufacture of electroplating equipment. One such application is in the manufacture of a perforated container, or "basket," used for anodizing small parts—much too small to be racked and anodized conventionally.

**The parts must be irregular** and with curved shapes so that there are no flat sides to stick together or nest. The parts are cleaned, deoxidized, and rinsed, and then loaded into the anodizing basket shown in Figs. 10 and 11. This is a perforated Rigid P.V.C. cylinder-type container in which the parts are held in place under spring tension applied by a plunger. A perforated aluminum tube is mounted in the center of the cylindrical container so that electrical contact with the parts being anodized may be made.

The anodizing basket, after loading,

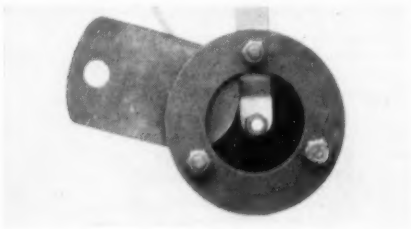

*Fig. 10—View of loading end of P.V.C. anodizing basket, showing electrode connection. Basket is used to anodize very small parts.*

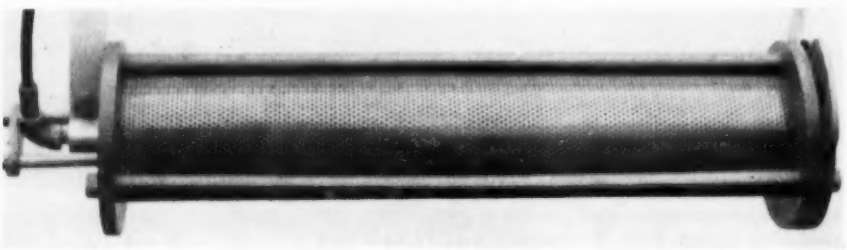

*Fig. 11—Overall view of a polyvinyl chloride anodizing basket. The hangers and center electrode are made of aluminum. The rest of the basket is constructed of Rigid P.V.C.*

# Wyandotte W. L. G.

## removes drawing compound and strips paint in a single operation at Ryerson & Haynes

### "Wyandotte W.L.G. does double-duty for us"

**. . . says Paint Superintendent E. J. Bosca, Ryerson & Haynes, Inc., Jackson, Mich.**

"IT CLEANS the auto bumper-jack parts we manufacture, *and* strips accumulations of baked-on paint from conveyor hooks—both in the same operation!

"Prior to painting, a continuous conveyor system draws the bumper-jack parts through a solution of W.L.G. The parts are then spray-rinsed, air-dried and painted. And we never remove the conveyor hooks to strip the hardened paint—this is done on each conveyor circuit as the hooks pass through the W.L.G. bath. The combined cleaning and paint stripping operation takes only three minutes, and has given us trouble-free service for the past ten years."

Wyandotte W.L.G.* is a free-rinsing, heavy-duty metal cleaner, designed for exceptional detergency, long life (flowing off grease daily, Ryerson & Haynes uses a tank of W.L.G. solution for three months!), and a variety of applications. Used in soak tanks, tumbling barrels, rotary washers, and low-pressure spray washers, W.L.G. removes heavy oils, drawing compounds and many types of paints from all ferrous and some nonferrous metals. For complete information on W.L.G. and other Wyandotte metal-cleaning products, call your nearest Wyandotte representative. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

*Reg. U.S. Pat. Off.

**Wyandotte**
**CHEMICALS**
**J. B. FORD DIVISION**

***Specialists in Metal-Cleaning Products***

For more data circle 177 on Reader Service Card

is hung in the sulfuric acid anodizing tank horizontally. As can be noted from Fig. 11, an air hose fits into the perforated cylinder, which is a part of the electrical circuit. During the anodizing operation, low pressure air agitation is employed to secure solution circulation and the formation of a uniform anodized coating on the small parts being processed.

An operating temperature of 60 deg. F. for the sulfuric acid solution is suggested. This low temperature, plus the cooling caused by the air agitation, will tend to keep the internal temperature of the load of parts under 70 deg. F. A relatively low voltage is used in the beginning of the anodizing operation and this voltage is increased during the first few minutes of the cycle so as to keep the current constant. Anodizing time varies from 40 minutes for a clear coating to 1½ hours for a coating which will be subsequently dyed. These figures vary, of course, with the base metal composition and other factors. At the end of the cycle, parts are removed from the basket and sealed in the conventional manner.

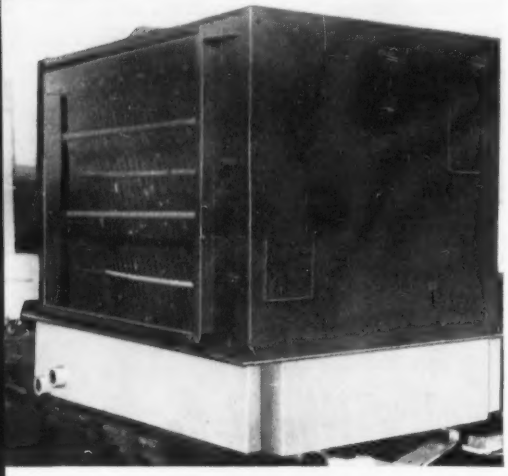

*Fig. 12—S & C Model 10V Air and Acid Fume Scrubber. Inlet and outlet pipes are 38 inches in diameter. The unit is 57 inches high, 54 inches wide, 48 inches from inlet to outlet. It contains water sprays, P.V.C. rings.*

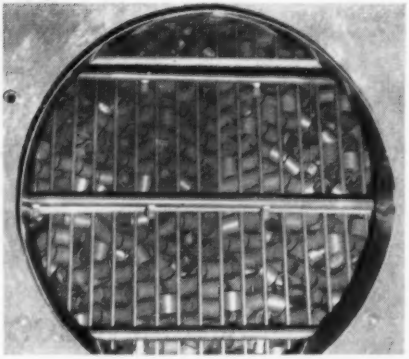

*Fig. 13—Close-up view of spray chamber and P.V.C. ring wash and scrubber bed installed in the Air and Acid Fume Scrubber. Photos courtesy S & C Mfg. Co., Cincinnati 13, Ohio.*

**Many of the processes** used in finishing produce fumes of various kinds which must be removed from the surface of the processing solution and from the plant. Some of these fumes are corrosive and, therefore, it is desirable to remove them completely from the air before it is exhausted outside the plant. These functions may be accomplished in the air and acid fume scrubber illustrated in Figs. 12 and 13.

The air and acid fume scrubber is a chamber constructed of unplasticized rigid P.V.C. Kaykor F-92 sheet through which the contaminated fumes are exhausted. The interior of the scrubber is fitted with a number of water sprays and packed with a quantity of P.V.C. rings. Thus, intimate contact between the fume-laden air

**PARLON® STAYS ON**

# Ready for 'Stacking' in Six Minutes

**QUICK DIP, QUICK DRY**—These axle housings have been dip-coated with a Parlon-based casting sealer manufactured by Tousey Varnish Co., Chicago, Ill. Housings were submerged in dip-tank, withdrawn by hoist and returned to conveyor line which moved past bank of drying lights. Dipping cycle took 20 seconds; housings were dry enough for handling after six minutes.

Fast-dry time is only one of the many reasons that manufacturers are turning to Parlon-Synthetic finishes to meet their finishing requirements.

Parlon casting sealers, for example, have been developed to take advantage of the unique characteristics of this finish. The higher solids and less expensive reducer employed when a Parlon-alkyd formulation is used results in substantial savings in over-all sealer costs. These Parlon sealers also provide a thicker, more uniform film coverage. And Parlon's outstanding resistance to weathering protects against corrosion even when parts are stored outside for long periods.

Parlon-Synthetic coatings are now available to meet all types of finishing requirements—no matter how specialized. For further technical information on a Parlon-Synthetic that is suited to your application, call or write your regular supplier of quality paint finishes or write directly to Hercules.

*Cellulose Products Department*
*HERCULES POWDER COMPANY*
INCORPORATED
*927 Market St., Wilmington 99, Del.*

CR56-3

**PARLON (CHLORINATED RUBBER) PAINTS ARE AVAILABLE FROM 400 MANUFACTURERS UNDER THEIR OWN BRAND NAMES**

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**Practical Applications**

and the wet surfaces of the rings can be effected. The rate of water flow is 10 g.p.m. The water carries with it into the drain almost all of the corrosive fumes from the exhaust air.

The capacity of the scrubber is 10,000 cubic feet of air per minute. The sump into which the contaminated water flows is made of 10 gauge steel lined with Vyflex FL-85. P.V.C. paint protects the exterior of the steel sump. The fume scrubber proper is constructed entirely of P.V.C. including all bolts and nuts used in its assembly. The rings are of sufficient diameter so that they do not build up a resistance to free air flow. However, they ensure contact between the wash water and the fume-laden exhaust air.

For more data circle 1 on Reader Service Card

# Hot Spray Improves Quality, Painting Speed

**By FRANK WILLIAMS**
**Superintendent, Sheet Metal Div., Vogt Brothers Mfg. Co., Louisville, Ky.**

**A production bottleneck** in manufacturing metal shower stalls has been eliminated by the installation of hot spray equipment at Vogt Brothers Manufacturing Co., Louisville, Ky. As by-products, quality control is easier and product uniformity is better.

This 123-year old firm manufactures a diversified line of metal products, ranging from shower stalls and power lawn mowers to canning machines.

**Shower stall production** had been limited by the production rate of the finishing department. Cabinets could not be sprayed rapidly enough to keep up with fabrication and shipping without sacrificing quality.

Installation of hot spray heaters on the finish lines allows production of an

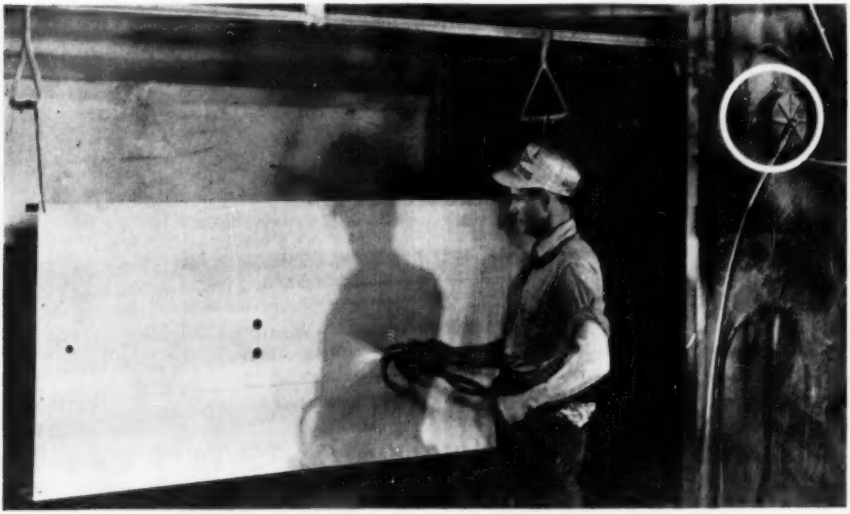
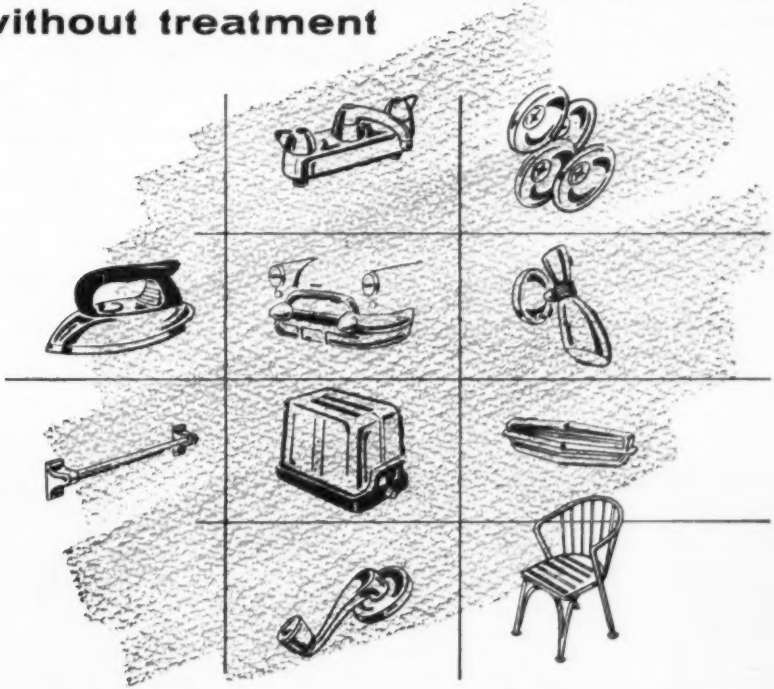


*Fig. 1—Spray painting metal shower stall panels. Hot spray unit is circled at upper right. Hot spray application has increased production and improved quality control.*

# HARSHAW Nubrite

## Long, bright nickel plating operation without treatment



*Other outstanding advantages are:*

**BRIGHT OVER WIDE RANGE**
from a few amperes/ft.$^2$
to well over 100 amperes/ft.$^2$

**HIGH TOLERANCE** to common impurities

**HIGHLY RECEPTIVE** to chrome

**EXCELLENT LEVELING**

**BETTER BRIGHTNESS** with thinner deposits.

**SIMPLE OPERATION and CONTROL**
Plates brightly from 120°F to 155°F.
pH can vary over a wide range.
Liquid addition agents.

**REMAINS DUCTILE AFTER LONG OPERATION**

*For additional information contact the Harshaw office nearest you.*

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For more data circle **179** on Reader Service Card

acceptable finish with two passes of the spray gun, rather than the three passes formerly required — a result of the higher solids film applied by the hot spray method.

Using the higher viscosity paint permissible with hot spray equipment has also helped to eliminate runs and sags. Hot application makes the paint "flow out" more easily, thus eliminating much of the "orange peel" problem. Drying is more rapid, since more solvent is evaporated between the gun and the work at elevated temperatures.

**Overspray is also reduced** with the newly-installed equipment: less atomizing air is required to break up the paint, since viscosity has been lowered with heat.

Tighter quality control is possible as a result of the consistent viscosity control possible in the hot spray range (150-170 deg. F.). No problems are encountered during periods of changing room temperature, since temperature of the paint being sprayed is always above room temperature.

For more data circle **2** on Reader Service Card

★ ★ ★

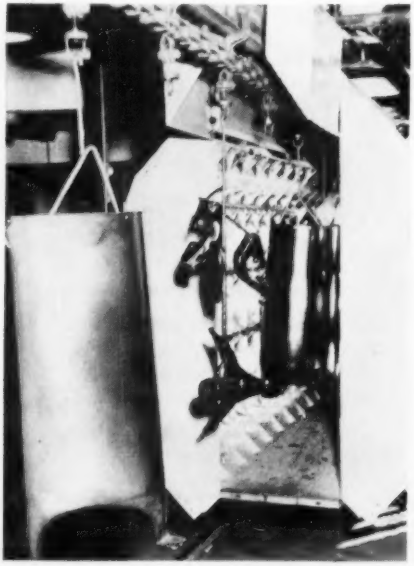
## Radiant Oven Speeds Paint Baking

**Faster production and less floor space** in baking enamel finishes on component parts are two of the advantages provided by a radiant oven recently installed at International Harvester Company's Richmond Works, Richmond, Indiana.

The oven, only 11 feet long, uses infra-red energy to do the job in just 11 minutes. It was installed by The Fostoria Pressed Steel Corporation, Dept. 222, Fostoria, Ohio.

For more data circle **3** on Reader Service Card

*Fig. 2—Inspector examines finish of hot spray enameled shower stall. (Photos courtesy of The Spee-Flo Company, Houston, Texas.)*



*Fostoria infra-red oven speeds paint baking at International Harvester. (Photo courtesy Fostoria Pressed Steel Corp.)*

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# IRIDITE® FINISHES

for

## CORROSION-RESISTANCE, PAINT BASE ON ALUMINUM AND MAGNESIUM

TYPICAL APPLICATIONS

Aircraft and Missile Parts

Automobile Hardware

Outdoor Furniture

Communications Equipment

Marine Equipment

**EASE OF USE**—Iridite is a simple chromate conversion treatment. Fast, easy, economical. Dip, brush or spray it on at room temperature. No special equipment. No specially trained personnel.

**OUTSTANDING PERFORMANCE**—Integral film can't flake, chip or peel. Takes paint firmly on initial application, and the bond lasts. Even protects areas scratched in use.

**LOWEST COST**—You have only minimum equipment cost, no special racks, high speed operation, lower overall handling costs.

**CHOICE OF APPEARANCE**—Clear coatings that retain metallic lustre to dark, maximum protection coatings. Dyes available, too.

**IRIDITE #14 and #14-2 (Al-Coat) for ALUMINUM**—Both provide excellent corrosion protection and paint base. Iridite #14-2 is an improved product that allows greater flexibility in operation and coating thickness and produces the optimum in corrosion protection. Either coating provides corrosion resistance superior to complicated electrolytic treatments in a fraction of the time. These coatings also have low electrical resistance, aid in arc-welding, provide a good base for bonding compounds, have no effect on the dimensional stability of close-tolerance parts. Choice of appearances ranging from clear through yellow iridescence to full brown. Red, green, blue, orange or yellow dyes available.

**IRIDITE #15 (Mag-Coat) for MAGNESIUM**—Produces a protective, paint base film with corrosion resistance at least equal to long, high-temperature dichromate treatments in a fraction of the time and at room temperature. Appearance can be varied from light brown to dark brown and black.

**APPROVED UNDER GOVERNMENT AND INDUSTRIAL SPECIFICATIONS**

**SEE FOR YOURSELF WHAT IRIDITE CAN DO . . . SEND SAMPLE PARTS FOR FREE PROCESSING. Also write for handy Reference File on Iridite chromate conversion coatings. Or, for immediate information, call your Allied Field Engineer. He's listed under "Plating Supplies" in your classified phone book.**

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Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals; ARP Plating Chemicals
West Coast Licensee—L. H. Butcher Co.

For more data circle **180** on Reader Service Card

***Hot spray.*** *Film-thickness gauge measures single coat of paint sprayed hot. Gauge reads 2.1 mils.*

***Cold spray.*** *One coat of the same paint sprayed in conventional manner measures only .8 mils.*

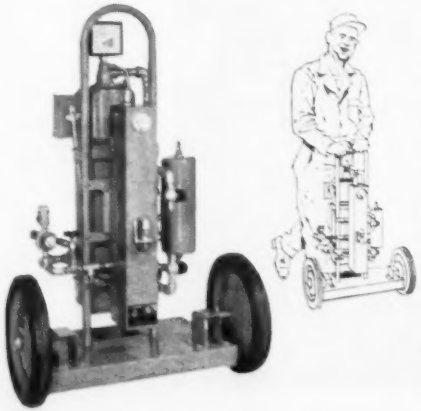
# Film-thickness gauge reveals DeVilbiss hot spray puts on more paint per coat!

Each of the steel panels in the test above was sprayed with a *single coat* of black vinyl paint. But the results measured on the film-thickness gauge show one important difference – the paint on the hot-sprayed panel is nearly three times heavier than that on the one sprayed by ordinary methods.

By the controlled application of heat to the spray material, DeVilbiss hot spray gives you heavier film build . . . even with standard formulations.

What's more, materials can be applied efficiently at far lower spraying pressures, greatly reducing spray fog, and resulting in up to 50% savings in material. Finishes dry faster; shrink less; come out glossier. And because fewer passes are needed, operator fatigue is cut way down.

DeVilbiss hot spray is usable on all types of products; can be your means to better finishes at lower costs. For facts on just how much DeVilbiss hot spray can save *you*, call your nearest supplier now! Or write for Bulletin F-286.



***Hot spray goes to the job** —anywhere—with this new DeVilbiss Portable Paint Heater! Self-contained on easily moved truck, it is complete with automatic controls. Heat-jacketed hose —available in lengths up to 50 feet—keeps paint hot right up to the gun. Write for Bulletin IE-1148.*

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**Toledo 1, Ohio**

*Santa Clara, Calif. • Barrie, Ontario • London, England*

*BRANCH OFFICES IN PRINCIPAL CITIES*

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**DEVILBISS**

For more data circle **181** on Reader Service Card

# New Equipment, Materials, Processes

Cleaning
Polishing
Plating
Paint Finishing

## Selective Bypass Mechanism

A bypass mechanism that automatically controls nine or more complete metal finishing processes on a single anodizing or electroplating machine, has been introduced by Hanson-Van Winkle-Munning Co., Matawan, N. J.

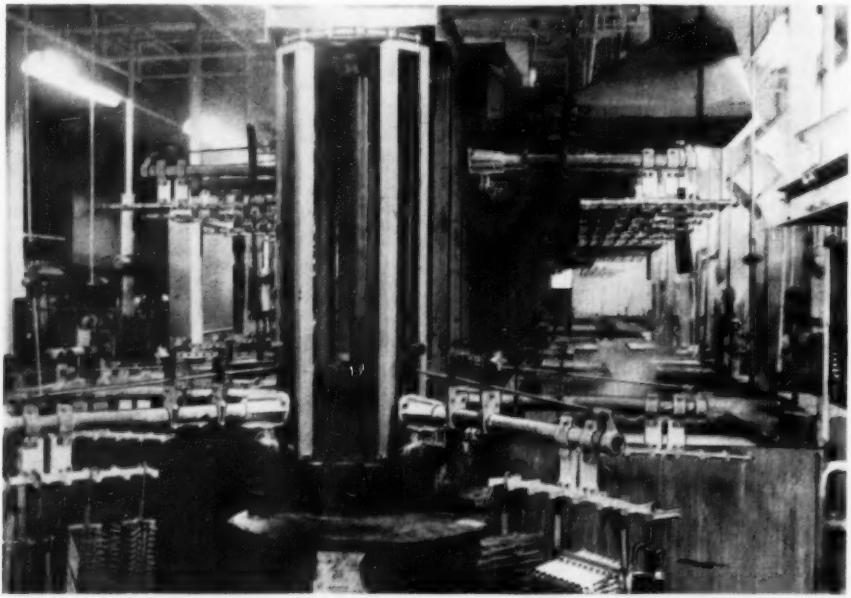

*Fig. 1—Hanson-Van Winkle-Munning Automatic Anodizing Machine with Dial-A-Cycle bypass mechanism. This installation utilizes a four-process Dial-A-Cycle system for anodizing aluminum refrigerator parts. Nine or more processes can be performed in a single machine by use of this control mechanism. View from load-unload end of the machine.*

The mechanism is a part of H-VW-M's "Dial-A-Cycle" system for automatic metal finishing. It is controlled from a dial on the carrier arm that moves parts through processing tanks. As unfinished parts are loaded on the carrier, the machine operator sets the dial for the desired processing steps through which the load is to move. Automatic conveying does the rest, lowering parts into the prescribed tanks, bypassing others, as the dial is set.

Heart of the system is a series of limit switches and solenoid-operated setdown flippers that control the action of the carrier. Different dial settings change the position of a "flag" which subsequently contacts or passes switches and flippers at each tank in the sequence.

One advantage cited for the system is that it improves quality, due to the close, automatic control of transfer and immersion periods. Dial-A-Cycle can be used for anodizing, electroplating or similar processing. It is particularly valuable when a variety of parts requires different processes or colors, H-VW-M reports.

Dial-A-Cycle has been installed at the refrigerator plant of a leading appliance manufacturer, where 15 different aluminum parts are automatically anodized. A four-process Dial-A-Cycle system is built into the anodizing machine. This permits the company to get two different anodizing treatments and two types of seal, thereby permitting a choice of plain or colored aluminum finishes—all from a single machine.

This particular installation utilizes only one color of anodizing dye, since the emphasis is on variations in finish rather than color. However, Dial-A-Cycle can be used in conjunction with many different dye or processing tanks in a single machine, with the control dial set to bypass all tanks except those required for the particular color or process desired.

*Fig. 2—Parts are loaded onto anodizing machine that utilizes H-VW-M Dial-A-Cycle bypass mechanism. Operator sets dial at start of cycle, carrier then bypasses or lowers parts into tanks as dictated by dial setting.*

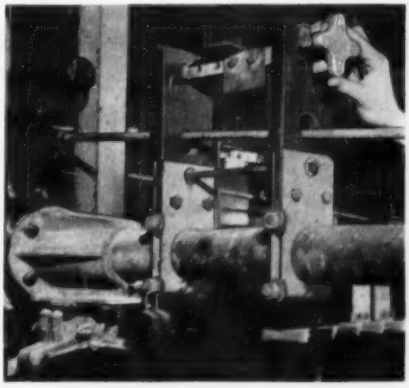

*Fig. 3—Closeup of dial mechanism for a four-process Dial-A-Cycle system. Different dial settings change the position of a contact on the dial, which is set to contact or bypass limit switches and solenoid-operated setdown flippers at each tank in anodizing machine.*

The Dial-A-Cycle control mechanism, located at the back of each carrier arm, is set after parts have been loaded. The operator rotates the dial to the setting prescribed for the raw parts just loaded. This moves a contact flag into one of several positions, in which it contacts or bypasses flippers and switches at each tank.

No further manual operation is necessary until finished parts are unloaded. With bypass features of the Dial-A-Cycle system plus timing and process control features of the H-VW-M machine, an almost infinite combination of sequences and dwell periods for cleaning, rinsing, etching, anodizing, plating, coloring and sealing can be achieved.

For more data circle **4** on Reader Service Card

★ ★ ★

## *Cascade Heater*

A cascade heater designed to heat sludge forming solutions such as those used in phosphate coatings, as well as to heat extremely corrosive solutions, has been developed by Ransohoff, Inc., 610 Ford Blvd., Hamilton, Ohio. Designated the Ransohoff Cascade Heater*, the unit heats liquids by direct contact between the liquid and the completely burned gases and hot air.

In the Ransohoff Cascade Heater*

*Patent Pending

the SECRET of BETTER SPRAYING...

"HOLLOW AIR®" produces the widest, wettest, most uniformly distributed spray pattern obtainable handling synthetic enamels —an exclusive feature of the BLACK ARROW line of paint spray equipment.

*Less pressure required* . . . Paint and air are blended so that force alone is not relied upon to break up the paint.

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## ...Protect Your Metal Parts with INTERNATIONAL ANTI-RUST COMPOUNDS

- **POSITIVE PROTECTION**
- **EASY TO APPLY**
- **LOW COST**

From temporary rust proofing of parts between phases of production . . . to indefinite protection of stored parts or assemblies, there's an International Anti-Rust Compound that will give you maximum protection at amazingly low cost. Each International Compound meets the specific requirements of the storage conditions, climate and duration of protection desired.

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# More Cleaning Per Tank

And you can put a lot of metal work through a cleaning tank charged with

## Cowles NS SOAK CLEANER

because Cowles NS Soak Cleaner has *extra soil capacity.*

Cowles NS Soak Cleaner gives you *more emulsifying* action—*more power* to hold loosened soil in suspension long after ordinary soak cleaners have broken down.

No scum on the cleaning tank to foul cleaned metal coming out. Clean it with Cowles NS Soak Cleaner and it stays clean. Your tanks stay clean, too. No sludge build-up.

For tips on *soak tank* cleaning before plating, enameling, other finishing—

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See Cowles' other advertisement on page 14

For more data circle **184** on Reader Service Card

(Figs. 1 and 2), the heating unit is a series of strip burners at the top of the unit. The flame is extremely short so that nothing but the heated air comes in contact with the solution. The solution runs over a series of pans, sloped in opposite directions, one above the other, in the cascade chamber. The depth of the solution on the pans is approximately 1½ inches and the solution runs from one pan to another over a saw-toothed edge so that at no time do the gases pass through a wall of water.

The whole unit is under slight pressure in order to cause the heated gases to pass through the spaces between the pans at high velocity. In order to accomplish this, the strip heaters are so designed that the secondary air as well as the primary air and gas is introduced under pressure, giving an excellent flame. The hot gases pass between the surface of the solution in one pan and the bottom of the pan above it.

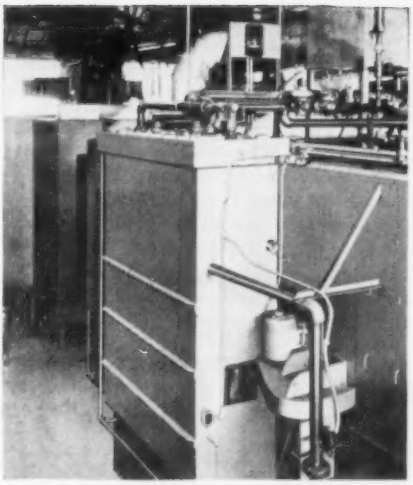

*Fig. 2—View of exterior of cascade heater built on one side of phosphatizing spray tunnel to heat and circulate solution.*

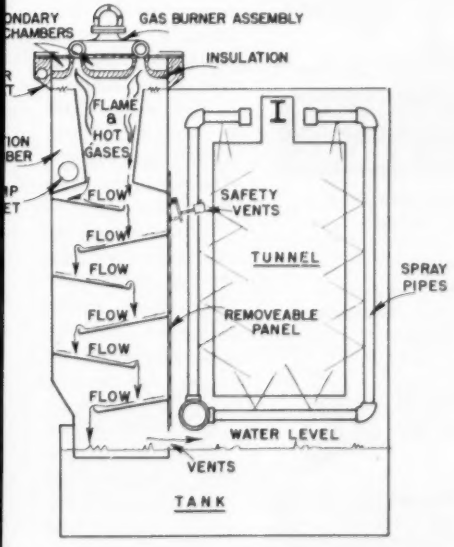


*Fig. 1—Section through cascade heater and spray tunnel showing method of operation.*

The rapid passage of these hot gases greatly increases the efficiency of heat transfer. Since only completely burned gases come in contact with the surface of the solution, which is approximately 1½ inches deep on the pans, excessive absorption of the gases by the solution as well as the emission of noxious gases is avoided. Main advantages of the Ransohoff Cascade Heater, according to the manufacturer, are: efficiency of heat transfer — more usable heat is obtained from the same amount of B.t.u.; lower maintenance costs—as proved by operation; freedom from noxious gases; the higher solution temperatures which can be attained.

Heaters may be made of acid resisting steel or plastic lined, and can be effectively used wherever it is found advisable to heat without flues and wherever the contact of the completely burned gases with the liquid is not objectionable.

For more data circle **5** on Reader Service Card

## Trolley Conveyor

Chain-O-Flex Corporation, 3334 Lincoln Ave., Franklin Park, Ill., has announced a conveyor series called T-100 for operation on either 3-inch I-beam or 2½ by 2¼ by ½-inch T-beam, for conveying jobs in ovens, spray booths and for dips.

*Trolley Conveyor for finishing installations*

The T series features a Chain-O-Flex specially designed chain, with an ultimate strength of 18,000 pounds. It will not fray or become weakened by flexing, nor is it subject to twisting or stretching, the manufacturer states.

A 2-piece trolley eliminates the need for load pendants. Trolley spacing is at 8, 12, 16 or 24-inch centers. Trolley capacities range from 80 to 160 pounds and can be doubled by the use of load bars.

The series 100 is especially recommended for operation in high temperatures.

Vertical curves of track can be furnished to requirements, from 3½-foot radius up. Horizontal turns are made around traction wheels of either 23-inch P.D. or 30⅝-inch P.D. and are available in 45, 90 and 180 degree turns.

Systems up to 1,000 feet with


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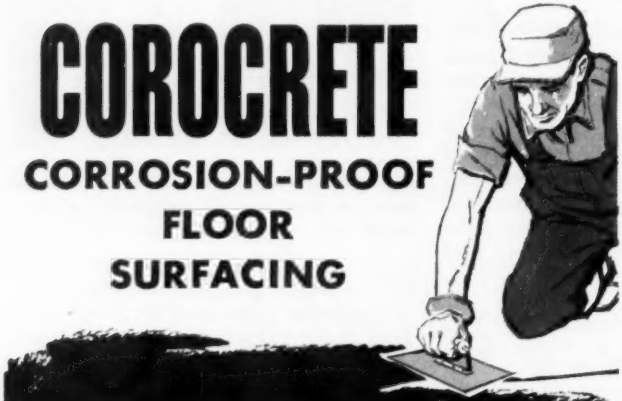
CORROSION-PROOF FLOOR SURFACING



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We will send you a sample to prove that COROCRETE will give you greater protection . . . save you dollars . . . and last longer.

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Here is a floor surfacing material that meets all conditions in chemical and food processing, plating and metal working industries. Write today to get a sample of COROCRETE . . . or to get complete technical data.

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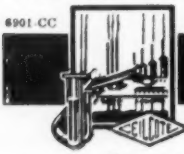
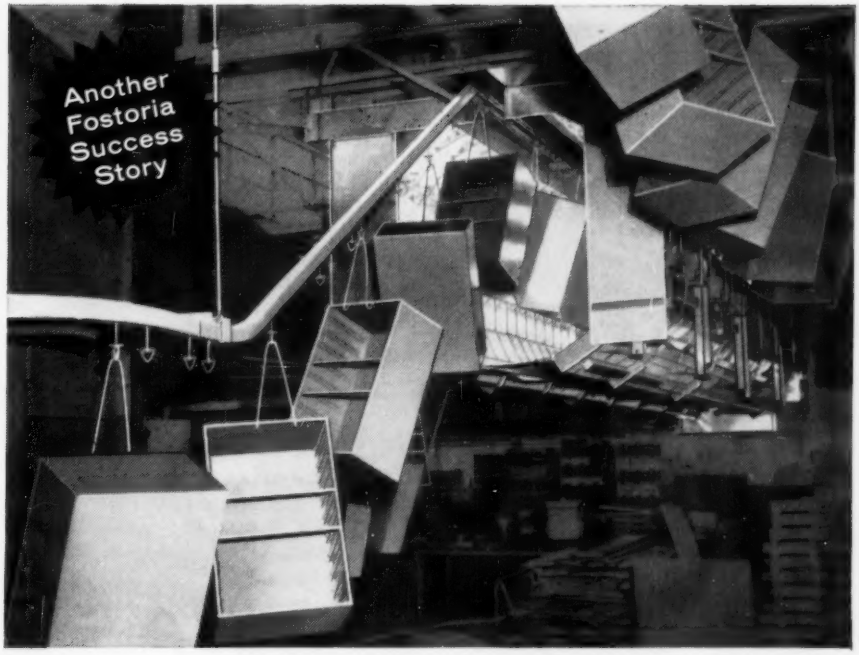



THE CEILCOTE CO., Inc.

Corrosion-Proof Material and Construction

4848 Ridge Road • Cleveland 9, Ohio

For more data circle 185 on Reader Service Card




# 12½-minute baking cycle overhead speeds production below

Far-sighted planning by The Wright Line, Inc., prevented costly production line bottlenecks in their new one-story plant in Worcester, Mass. By suspending compact Fostoria Radiant Ovens ceiling-high . . . drying the "fine-wrinkle" finish on their metal card-handling cabinets is accomplished in 12½ minutes through controlled 365° F. radiant heat—and without interrupting the continuous flow of products at floor level!

Painted units are conveyed from spray booths upwards through 5' x 6' tunnel openings in their two 28½-foot Fostoria infrared ovens, for a fast, uniform baking-out operation. Valuable floor space is saved, production moves smoothly, and a better finish is assured at lower cost through efficient Fostoria radiant heat.

Consulting your Fostoria sales engineer can bring out some important cost-saving solutions to your finishing problems . . . heating, degreasing, baking, drying. He'll give you the facts on Fostoria radiant equipment — infrared lamp, quartz lamp or radiant rod—that will do the most work for you at lowest cost. 5513A

*Write for free 20-page book, "Radiant Heat—applications unlimited"*

INFRA-RED SYSTEM
**fostoria**

**FOSTORIA PRESSED STEEL CORPORATION • Dept. 822 Fostoria, Ohio**

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WORRY WON'T PRODUCE
WRINKLES

better try...
DURALAC

We have a full range of wrinkles—extra fine thru coarse, for every purpose. We stock black and supply colors on order. You'll find SEA-LAC wrinkles uniform in texture—and resistant to abrasion, perspiration, cleaning solvents.

SEA-LAC

DURALAC CHEMICAL CORP.
84 LISTER AVENUE, NEWARK 5, N. J.

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chain pulls up to 2,000 pounds can be operated with a single drive unit. Drive units are furnished to requirements. Standard drives or in-line crawler drives are available. Horsepowers range from ¼ h.p. to 3 h.p. depending on speed required or chain pull.

For more data circle **6** on Reader Service Card

★ ★ ★

## *Cartridge-Type Water Demineralizer*

Enley Products, Inc., 1236 Broadway, Brooklyn, N. Y., has announced a permanent cartridge-type water demineralizer. Known as the "Perma-Demon," it is designed for removal of ionizable impurities from tap water, and is well suited for use by laboratories and electroplaters.

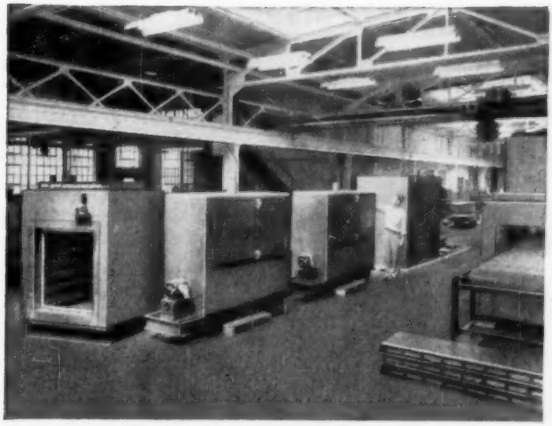
*Perma-Demon Cartridge-Type Demineralizer*

Requiring no cartridge replacement by the manfacturer, the Perma-Demon is furnished as a clear, unbreakable plastic tube with a removable top cover, and with a built-in porous stone filter and a Fiberglas screen. It is attached to the wall near a tap with aluminum brackets, and connected to the water source and destination.

The ion-exchange material can be easily removed and replaced.

For more data circle **7** on Reader Service Card

# KIRK & BLUM Industrial Ovens



*Ready To Go!*

*Whatever your oven needs . . . large or small, batch or conveyorized production, for drying, baking or dehydrating . . . they can be filled by KIRK & BLUM.*

*Put Kirk & Blum's 50 years of experience to work on your industrial oven problems. For complete information and new "Ovens for Industry" catalog, write: The Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.*

**Industrial Ovens • Fan Systems for Various Industries • Dust Collecting Systems in Metal Industries**

Many KIRK & BLUM Industrial Ovens, although designed and built to specifications, are shipped completely assembled and tested, ready to operate. Once "spotted" in your plant, they can be connected and in operation in a few hours, saving time, expense and confusion.

Illustrated is a representative group recently shipped to well known industrial firms.

**KIRK & BLUM**
**INDUSTRIAL OVENS**

For more data circle **188** on Reader Service Card

## *Synthetic Rubber Coating*

A Neoprene coating in liquid form, suitable for brushing or spraying, has been announced by Wilbur & Williams Co., 130 Lincoln St., Boston 35, Mass. The material is said to have longer shelf life.

The coating is recommended for use where corrosion, exposure to corrosive chemicals or exposure to solvents are problems.

For more data circle **8** on Reader Service Card

★ ★ ★

## *Pore Measuring Instrument*

A complete pore-structure analysis is said to be possible in ten minutes using an instrument developed by the American Instrument Co., Inc., Silver Spring, Md.

The instrument measures pore sizes ranging from 0.1 mm. to 0.06 microns, and pore volumes as small as 0.0005 ml. at each pore diameter. The device is portable. It is useful in determining such things as the protectiveness of paints and permanence of porcelain.

The Aminco-Winslow Porosimeter operates on a mercury intrusion principle, is completely hydraulic, and is safe to operate. It measures 18½ by 8¾ by 10¾ inches and weighs approximately 100 pounds.

Detailed information is given in Bulletin 2282, available from the American Instrument Co., Inc., Silver Spring, Md.

For more data circle **9** on Reader Service Card

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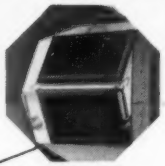
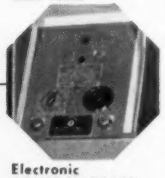
PRECISION BARREL FINISHING

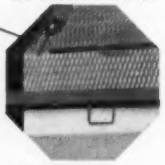
**Equipment** Custom Styled for Modern Industry ... Will modernize and add exceptional efficiency to plant deburring and finishing departments. For high production needs or large work loads. Available in 3 model lines – with luxury features.



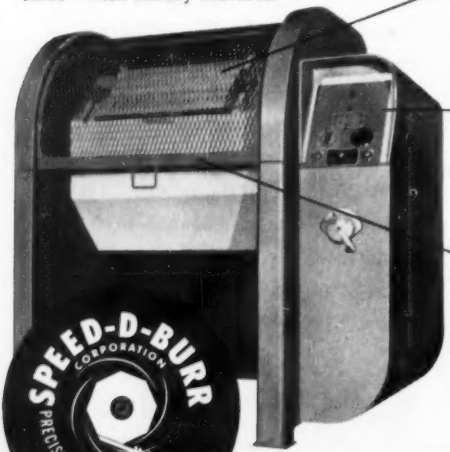
HINGED DOOR with quick-acting cam locks



Electronic CONTROL PANEL for absolute control



SWING-AWAY HOOD for assured operator safety




MT-37

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Service is our most important product . . . Use it!

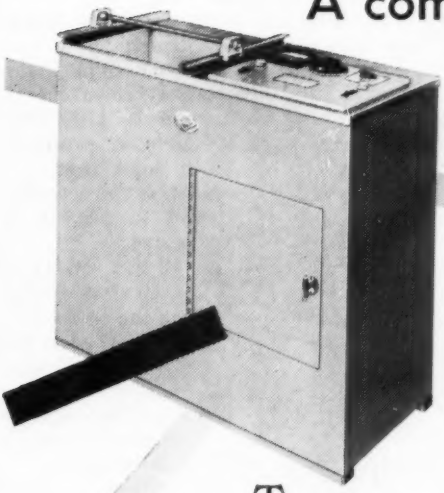
**SPEED-D-BURR CORPORATION**
**3613-c San Fernando Road, Glendale 4, Calif.**

For more data circle **189** on Reader Service Card

Sel-Rex

# Jet Plater

## A complete, versatile small-volume plating unit



*compact! portable! automatic!*

The SEL-REX "JET" PLATER is a complete electroplating unit in a compact portable cabinet. Designed and built by electroplating specialists, the "JET" PLATER incorporates a built-in rectifier with timer and other automatic features for high speed, quality work, usually found in large, mass production plating installations.

**VERSATILITY** — The "JET" PLATER can be used for either rack or barrel plating operations . . . a perfect small-volume unit for decorative (precious metals) or functional electroplating.

**CONSISTENT HIGH QUALITY RESULTS** — Pump and perforated stainless steel tube at bottom of plating tank provides swirling "JET" agitation . . . the solution moves constantly around the work for smooth, even deposits, high precision results. Solution is continuously drawn off from the bottom of the tank, circulated through the pump and filter, and returned to the tank under pressure.

**"CUSTOM" DESIGNED FOR PRECIOUS METALS** — The "JET" PLATER is equipped with a replaceable cartridge type filter which provides continuous filtration for high speed operations . . . ideally suited to precious metals plating. Filter may be by-passed if only intermittent filtration is desired.

*Available in standard tank capacities of 10, 20 and 30 gallon models. Larger capacities to specifications. Send for literature.*

## Sel-Rex Precious Metals, Inc.

**229 Main Street** **Dept. PF-8** **Belleville 9, N. J.**

For more data circle **190** on Reader Service Card

## Silk Screens for Printing

Cincinnati Screen Process Supplies, Inc., 43 Walnut St., Cincinnati 2, Ohio, has developed a special camera for the production of improved silk screens. Copy, preferably black and white, can be submitted in any size. So long as the dimensions on the finished screen are indicated, the copy can be enlarged or reduced with good sharpness of detail and precision. A special frame has been designed to maintain tautness of the silk or steel screens for perfect registry and durability.

For more data circle **10** on Reader Service Card

★ ★ ★

## Clear Lacquer

Fidelity Chemical Products Corp. has announced a multiple-purpose lacquer for metals, designated as Clear Universal Lacquer No. 100. This lacquer produces a finish that protects practically all metals, it is stated.

This coating saves time during coating operations by eliminating the need for switching from one lacquer to another when a different metal is to be finished.

Clear Lacquer No. 100 is water white in color and has good color retention and adhesion. It forms a tough film which offers resistance to perspiration, corrosion, stain spotting, sulfur, heat and cold. Indoor and outdoor exposure life are good. Clear Lacquer No. 100 can be reduced 50-50 with Fidelity Thinner No. 28 for application by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"Hand Protection Clinic" Helps You Solve Your Industrial Glove Problems

Send a complete job description on your company stationery. Include dexterity and abrasion resistance requirements, and a complete description of chemicals or solvents used; plus notes on any extreme temperatures encountered. Our solution of your glove problem assures you of maximum employee protection and efficiency at minimum cost. Write—Attn: Hand Protection Clinic.

New knit cotton lined Stanflex VL-34 with its highly flexible red vinyl coating features PIONEER's exclusive non-slip grip. Outwears leather on rough abrasive use yet withstands most industrial chemicals. Write for complete PIONEER line catalog today.

the PIONEER Rubber Company

285 Tiffin Road, Willard, Ohio, U. S. A.

*Pioneers in Industrial Hand Protection for over 35 Years*

For more data circle **191** on Reader Service Card

# "BUCKY" offers you FREE!

## a TRIAL BAR of K260G

**STAINLESS STEEL BUFFING COMPOSITION**

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*OUTSTANDING FOR CUT AND COLOR WHEN USED WITH*

**SISAL BUFFS**

*The* BUCKINGHAM PRODUCTS CO.

*POLISHING and BUFFING COMPOSITIONS*

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For more data circle **192** on Reader Service Card

spray and may be reduced for dipping with Fidelity Thinner No. 29. It dries out of dust in 5 to 10 minutes and dries hard in one hour.

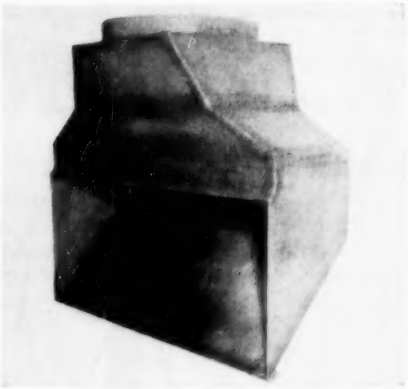
Additional data, catalog material and a free sample of Clear Universal Lacquer No. 100 can be obtained from Fidelity Chemical Products Corp., 472 Frelinghuysen Ave., Newark 5, N. J.

For more data circle 11 on Reader Service Card

★ ★ ★

## Fume Hoods

A light weight corrosion-resistant fume hood has been introduced by Haveg Industries, Inc., 900 Greenbank Rd., Wilmington, Delaware. Made of polyester glass plastic, it is said to be light in weight, and to have high impact strength and good corrosion resistance to acid and other corrosive fumes.



*Haveg Corrosion-Resistant Plastic Fume Hood*

The ease of field fabrication, both for initial construction and possible


RAMCO degreasers

from Laboratory Units to Giants for the Automotive Industry

ANOTHER RAMCO PRODUCT

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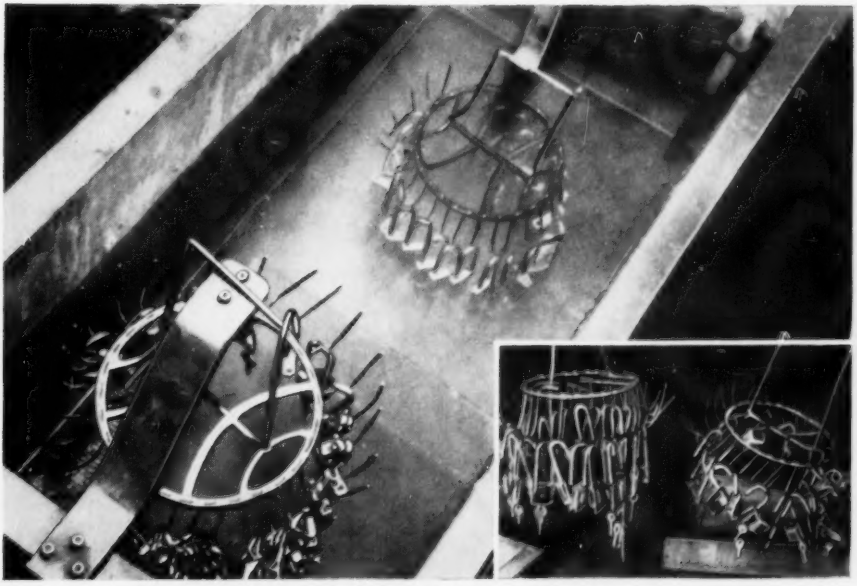


Brass padlock assemblies being degreased. "Triclene" D assures clean, dry, metal surfaces, ready for subsequent treatments.

Padlock assemblies prior to degreasing. Key sets are left in the locks to eliminate possibility of mixing keys.

*American Hardware Reports:*

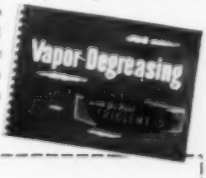
## "50 to 75% longer time between degreaser cleanouts ... brighter cleaning ... with TRICLENE® D"

In April 1955, the P. & F. Corbin and Russell & Erwin Divisions of the American Hardware Corp., New Britain, Conn., began using "Triclene" D trichlorethylene exclusively in their six conveyorized and three manual degreasers. Their builders' hardware line includes locks and door fittings with highly polished surfaces of brass, bronze, copper, steel and zinc.

Since they started using "Triclene" D, they report: "...brighter cleaning...no necessity to wipe parts before lacquering." They also noted a steadier pH and solvent went 50 to 75% longer before a cleanout was needed. Moreover, "the coils are easier to clean."

Heat, light, air, acids and aluminum chloride will not affect "Triclene" D with locked-in stabilizers. This rugged solvent safely cleans even the most delicate metal surfaces. "Triclene" D retains its original purity longer ... gives bright cleaning of any metal, distillation after distillation. Yet it costs no more than ordinary solvents!

***Get all the facts*** on Vapor Degreasing in this new Du Pont book. Forty-two pages of data, figures and illustrations cover all the latest developments. For a copy—without obligation—mail the coupon below.

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DU PONT
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BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department FF-5
Wilmington 98, Delaware

☐ Please send me a copy of your new Vapor Degreasing book.
☐ Please have your Representative phone for an appointment.

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# DAYCO HAMMER FINISHES

For uniformity of pattern, depth of gloss, permanency, toughness, chip resistance; all features that help to make sales and build a quality reputation for your products, specify DAYCO baking or air dry Hammer finish.

Backed by half a century of "know how", Dayco finishes have a quality reputation you can depend upon. We have, or will produce for you, the special finishes your production calls for.

- Clear and colored Lacquers
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- Surfacers
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changes, makes the polyester resin glass reinforced hoods especially suitable for industrial fume removal applications.

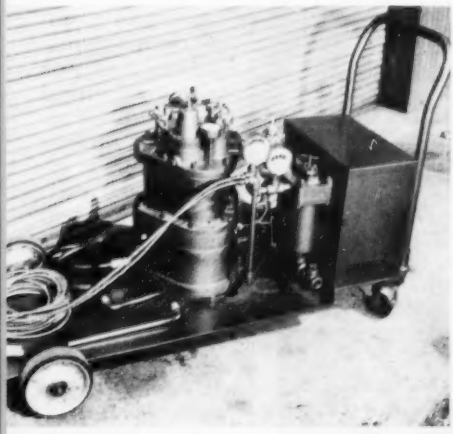
For more data circle **12** on Reader Service Card

★ ★ ★

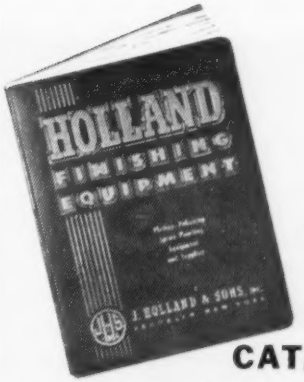
## Portable Airless Spray Apparatus

The Bede Portable Airless Spray Coating Unit makes it possible to take Airless Spraying to the work. With this equipment it is possible to finish such items as large machine tools, structural shapes, earth moving equipment, and others, without the necessity of moving these cumbersome items to a central finishing area. The unit is produced by Bede Products Corp., Jackson St., Dept. 1, Amherst, Ohio.

The airless spray coating process utilizes no atomizing air at the spray gun. This minimizes the overspray problem. By applying hydraulic pressures, 400 to 600 p.s.i., to heated finishing materials, complete atomization of the finishing material is achieved.



*Bede Portable Airless Spray Coating Unit*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*IMMEDIATE DELIVERY!*

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| Abrasives | Dipping Baskets | Polishing Lathes |
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| Air Compressors | Exhaust Systems | Rectifiers |
| Ammeters | Filters | Rheostats |
| Anodes | Galvanizing Equipt. | Rhodium Plating Equipt. |
| Baking Ovens | Generators | Sawdust & Dryers |
| Batch Ovens | Grinding Lathes | Scratch Brushes |
| Belt Strappers | Heaters | Silver Plating Equipt. |
| Bench Type Polishers | Heating Coils | Spray Booths |
| Binks Spray Equipt. | Heat Exchangers | Spray Equipment |
| Blowers, Exhaust | Hoods, Exhaust | Tanks, all types |
| Burnishing Barrels | Immersion Heaters | Turntables |
| Boxes, Sawdust | Meters | Tygon Paints |
| Brass Plating Equipt. | Motor Driven Equipt. | Tygon Thinners |
| Bus Bar | Motors | Tygon Linings |
| Carboy Filters | Motor Generators | Tygon Rack Coatings |
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←For more data on advertisement on opposite page circle **195** on Reader Service Card

The manufacturer points out the following advantages of this process:

1. By heating the finishing material, higher solids finishes can be applied, more material is applied in fewer passes, and a better appearing finish is achieved.
2. Health hazard to the operator is considerably reduced, since overspray is minimized.
3. Reduced air-makeup requirements.

Portability of the Airless Spray Coating equipment also provides these advantages to painting contractors and paint maintenance crews.

For more data circle **13** on Reader Service Card

★ ★ ★

## *Nickel Undercoat for Rhodium Plating*

A nickel plating process developed by Sel-Rex Precious Metals, Inc., Belleville, N. J., specifically for use with its Bright Rhodium, is said to produce hard and ductile, compressively stressed nickel coatings. Known as Lectro-Nic, the nickel undercoat applied by this process is said to counteract rhodium electroplate's inherent tendency to crack and peel.

Lectro-Nic will be of particular interest to printed circuit manufacturers, as well as the electrical and electronic industries, because it eliminates the peeling and curling common in printed circuits and other precision components. Sel-Rex engineers state that this process offers better wear resistance, and assures a more tenacious bond.

**Metal Parts Washers—Phosphatizing Units —Hydra-Spray Pickling Equipment**

Metal parts are cleaned and processed by means of pressure sprays which converge on the parts from all angles. Solutions are heated to required temperatures by gas, oil or steam immersion heaters. Spray solutions remove foreign matter and perform metal treatment as required.

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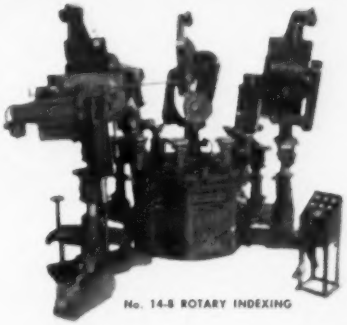
PACKER-MATICS ability to polish and buff your product with the highest degree of uniformity . . . automatically at high speed . . . affords plenty of profit opportunities for you.

As the products move from station to station, precisely angled and evenly dressed wheels produce consistently better finishes in a fraction of hand operation time . . . automatically.

There are a variety of Packer-Matics with the speed and versatility to meet your most exacting requirements for faster, more uniform, low cost polishing, buffing and deburring.



No. 14-8 ROTARY INDEXING

*OUR ENGINEERING STAFF INVITES YOUR INQUIRY*

# *PACKER-MATIC*

*AUTOMATIC MACHINES FOR BUFFING • POLISHING • DEBURRING*

**THE PACKER MACHINE COMPANY • MERIDEN, CONNECTICUT**

For more data circle 198 on Reader Service Card

## New Materials, Processes

Full technical information on the Lectro-Nic Process is available from Sel-Rex Precious Metals, Inc., 229 Main St., Belleville 9, N. J.

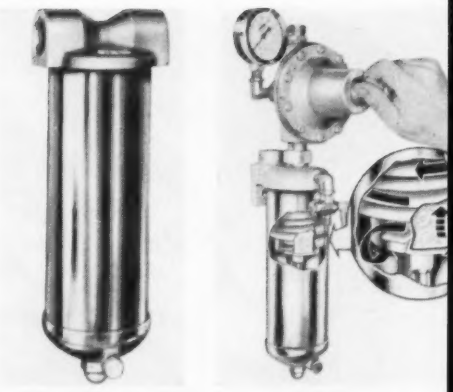
For more data circle **14** on Reader Service Card

★ ★ ★

## *Oil and Water Extractor*

An oil and water extractor with an air capacity of 100 c.f.m. has been announced by the Binks Manufacturing Company. The unit is designed for use on lines where the amount of oil and water is excessively high. Two models are available.

Model AO-125 reportedly supplies up to 100 c.f.m. of clean, dry, regulated air to as many as six heavy duty spray guns at the same time. An enlarged and improved air regulator on the extractor is credited for the increased air capacity.



*Binks Oil and Water Extractors. Left, Model AO-124, for use on main lines requiring non-regulated air; right, Model AO-125 is equipped with regulator. Air capacity: 100 c.f.m.*

Model AO-124 is the same as the AO-125 but lacks the air regulator. Designed for use on main lines requiring

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"Fine finishes are essential to the sales success of our products," says L. E. Mason Co., leading manufacturer of quality gifts. "To highlight the copper plated and oxidized finish of the coasters, we depend on Paramount Felt Bobs. We get the precise color we want with no 'ragged highlighted ends' and without destroying contrast between the oxidized backgrounds and highlights. Your bobs give good cut, good life while producing the fine finishes we demand."
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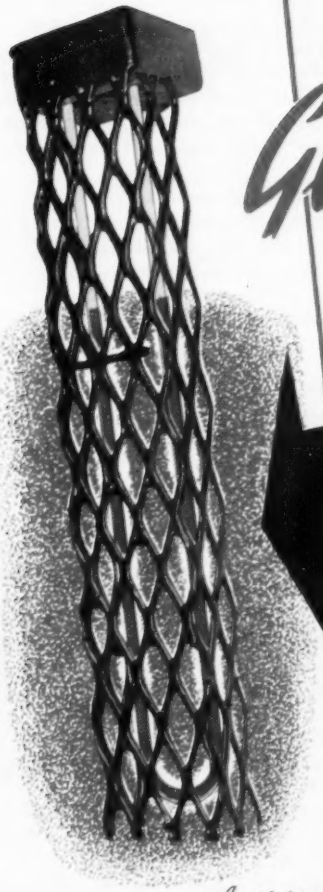

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- **100% THERMAL AND MECHANICAL SHOCK-PROOF CONSTRUCTION**
- **GUARANTEED TO OUT-PERFORM AND OUT-LAST ALL OTHER QUARTZ HEATERS**

*Available from your Electroplating Distributor!*

**Big Savings For You With Type "U" Immersion Heaters**

You get much longer service life with greatly improved accuracy and heating efficiency from the new Type "U" Glo-Quartz Heaters. Order today—and save time, trouble, money!

***WRITE, WIRE or PHONE FOR BULLETINS AND PRICES***

Standard Sizes in Stock for Immediate Shipment

**Glo-QUARTZ ELECTRIC HEATER CO., INC.**

*Trademark Reg. U.S. Pat. Off.* **WILLOUGHBY, OHIO** Phone: Willoughby 3-4121

For more data circle **200** on Reader Service Card

non-regulated air, its high air capacity results from larger air inlet and outlet sizes.

A combination of spiral baffles with special absorbent filters in each of the extractors removes moisture, oil, rust, dirt and other foreign matter from the air before it reaches the spray gun. When dirty, the filter can be removed and washed in a petroleum solvent.

Both models incorporate an automatic drain which opens when the air supply is shut off and closes when the air supply is turned on. They are also equipped with manually-operated drains.

Complete information on these oil and water extractors is contained in Bulletin AO-125, available from the Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12, Ill.

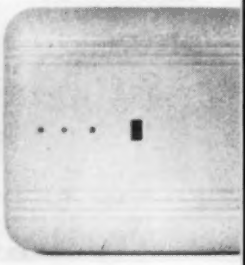
For more data circle **15** on Reader Service Card

★ ★ ★

## Wrinkle Plastisol

Wrinkle plastisol, a coating product said to have good abrasion resistance, has been introduced by The Stanley Chemical Company, 31 Berlin St., East Berlin, Conn.

The wrinkle plastisol, a 100 per cent solids material, is spray applied. The basic material is slightly reduced with Stanley Thinner No. 79K-53 and is applied over Stanley Primer No. 40X-415.



*Wrinkle Plastisol Finish on Metal*

Possible applications for wrinkle


**TUMBLING CHIPS**

**PROCESSED LIMESTONE HONING CHIPS**
are excellent for producing a super fine finish on non-ferrous metals.

**PROCESSED RED GRANITE ABRASIVE CHIPS**
are exceptionally well suited for developing a fast cut on ferrous metals.

**CHIPS IN 16 SIZES**

**FREE** CATALOG AND CHIP SAMPLES FOR COMPARISON.

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*VE 8-2071*

**UNIVERSAL TUMBLING SUPPLY CO.**
**14337 Mansfield** **Detroit 27, Mich.**

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**METABOND**

MEANS *PROGRESS* IN RUSTPROOFING

METABOND is the only effective immersion or spray amorphous type zinc coating in the industry today.

METABOND withstands severe and consistent flexing and bending without chipping or breaking bond.

**INTERNATIONAL RUSTPROOF CORPORATION**
12507 PLOVER AVENUE • • • • CLEVELAND 7, OHIO
MANUFACTURERS OF RUST PREVENTIVES AND CORROSIVE SOLVENTS

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Users all agree . . . Hammond Variable Speed Polishing and Buffing Lathes set the standard for smooth, dependable, versatile and continuous production. You simply turn the handy dial control to any point between 1500 and 3000 RPM . . . instantly the Lathe adjusts to conform to your spindle speed selection. You move from one speed to another without breaking stride. Polishing and "cut down" — buffing — satin finishing. Advantages are endless. Available with one or two independent spindles.

***America's most complete line of Polishing and Buffing Lathes—up to 50 HP. Write for catalog today.***

**HAMMOND MODEL VRO**
**VARIABLE SPEED POLISHING**
**AND BUFFING LATHE**

**Hammond Machinery Builders INC**

**1622 DOUGLAS AVENUE • KALAMAZOO, MICHIGAN**

For more data circle 203 on Reader Service Card

plastisol include typewriters, business machines and other mechanical devices used in offices.

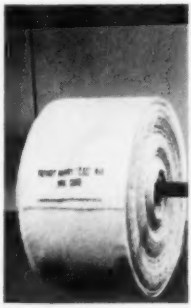
Included in its physical characteristics after it is properly fused are good hardness, perspiration resistance and chemical resistance properties. Its abrasion resistance is said to be an outstanding feature of the product.

To obtain the wrinkle pattern, eight to ten mils of plastisol is applied on the primer. With proper application the plastisol can be sprayed on vertical surfaces without sags. It can also be applied to smooth surfaces such as paper and foil. Available now in a few basic colors, wrinkle plastisol is being developed in a full line of colors.

For more data circle **16** on Reader Service Card

## *Measured Tack Cloth*

A "measured roll" bulk-size tack rag is being manufactured by Detro Mfg. & Sales Co., Dept. PF, 3429 Wesley, Culver City, Calif. The roll carries a black line every 36 inches, making cutting of specific lengths of tack rag easier. The Detroit bulk rolls are 300 yards long. Although actually 36 inches wide, the material is folded twice over (four ply) making the roll nine inches in width. Tack rags are used for final cleaning of surfaces prior to painting.



*Detroit Measured Roll Tack Cloth*


Rhodium ELECTROPLATING SOLUTIONS

Rhodium Plating for jewelry offers the advantages of whiteness, lustre and corrosion resistance . . .

For electrical and other applications: protection from corrosion in air or unusual conditions . . . Particularly recommended for printed circuits and contact surfaces . . .

Can be applied to many surfaces from less than one to one hundred milligrams per square inch . . .

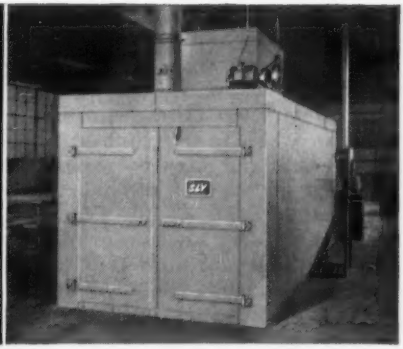
*Consult our staff, without obligation, about your specific plating problems.*

SINCE 1901

SIGMUND COHN MFG. CO., INC.
121 SOUTH COLUMBUS AVENUE · MOUNT VERNON, NEW YORK

For more data circle **204** on Reader Service Card

# SLY
## Oven Speeds Aluminum Aging



Midwest Aluminum Company, Kalamazoo, Mich., uses a Sly box-type Oven to age 1½ tons of extruded aluminum sections per batch. The Sly Oven is, in the words of the company, an excellent installation. Frequent air changes per minute — so important in aluminum aging — are assured by the correct capacity fan. A uniform 400° F. temperature throughout is maintained by the convection-type heating system, which uses an electric air heater with a total capacity of 120 kilowatts an hour. Heavy insulated panels provide an effective heat seal.

This is another example of the wide variety of work involving baking, drying and finishing to which Sly Ovens are put. *Write for your copy of Bulletin 200,* which describes the complete line of Sly Convectioneered Ovens.

**While one carload of aluminum is being heated another car is loaded. The aged aluminum is run out the exit door and the next car moved in to make a continuous operation.**

SINCE 1870

**THE W. W. SLY MANUFACTURING CO.**

**4784 TRAIN AVENUE • CLEVELAND 1, OHIO**

**OFFICES IN PRINCIPAL CITIES**

For more data circle 205 on Reader Service Card

The Detroit "measured roll" contains a two-inch cardboard-core center piece able to withstand continuous weight and rolling. By use of ordinary pipe or wire the Detroit roll may be hung anywhere in the plant or factory.

The bulk roll may be exposed for weeks at a time and still remain soft and tacky, it is stated. The Detroit rag contains no wax, silicones or other ingredients that will prevent the proper adhesion of paint, the manufacturer states.

"Detroit Handy Tac Rags" continue to be manufactured in the 18 by 36-inch and 36 by 36-inch sizes, both bulk packed and individually packaged in envelopes.

For more data circle **17** on Reader Service Card

★ ★ ★

## Anti-Rust Compound

Parts that must be stored temporarily can be rust proofed with a material developed by the International Chemical Co., 2628 N. Mascher St., Philadelphia 33, Pa.

Called NoRu Sol, this water soluble compound is said to protect parts stored indoors for 30 or more days under normal plant conditions.

According to the manufacturer, test parts coated with NoRuSol showed no evidence of rust after 40 hours exposure in a humidity cabinet with the temperature at 100 deg. F. and relative humidity of 100 per cent.

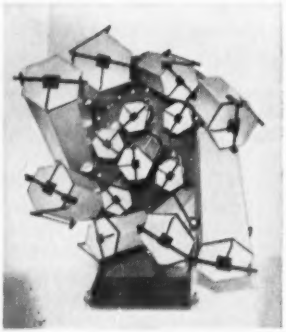
Normally used as a 3 per cent solution, NoRuSol can be applied either by spraying or by dipping parts in the 130 deg. F. solution. This protective


Give Us Your Opinion About

Lakeseal's ORGAN-TU®

amazing, new, all purpose

Liquid TUMBLING Compound



USABLE with all types of media—acts without attack on all metals, plastic or rubber. Instantly soluble, not affected by hardwaters. Non-hazardous. Reduces need of stocking many barrel finishing compounds. Gives exceptionally high color.

**GET THE FACTS ABOUT IT–** Discover its many profitable applications to your tumbling and grinding problems. Let us know what you think.

Mail this coupon now

To: FINGER LAKES CHEMICAL CO., INC., Etna, N. Y.

Send without charge or obligation data about your new tumbling compound, ORGAN-TU

If you would like to have an outstanding barrel manufacturing concern process test parts for you free, using our compound, check here ☐

Company.....

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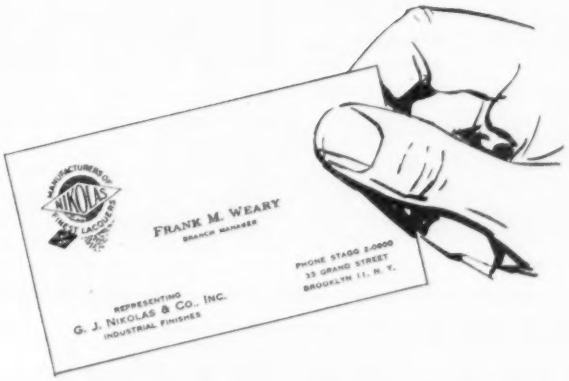
City & State.....

For more data circle **206** on Reader Service Card

NIKOLAS

SINCE 1890

# Your Introduction to FINE FINISHES




For over a Half Century our representatives have shown that Quality finishes can produce lower finishing cost, by greater coverage.

We welcome your inquiry and the opportunity to demonstrate.

***FOR INFORMATION, SAMPLES AND RECOMMENDATIONS***

***WRITE — WIRE — OR CALL***

## G. J. NIKOLAS & CO., INC.

**2880 WASHINGTON BLVD., BELLWOOD, ILL. • 33 GRAND ST., BROOKLYN 11, N. Y.**

For more data circle **207** on Reader Service Card

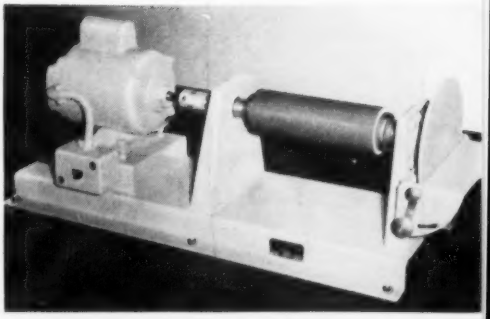
film can remain on work for subsequent operations. In cases where a chemically clean surface is necessary, the compound can be removed with a mild cleaning solution.
For more data circle 18 on Reader Service Card

★ ★ ★

## Rotary Finisher

A Rotary Finisher and Buffer announced by Mathewson Machine Works, Inc., Quincy, Massachusetts, has wide application for abrasive finishing, burring, sanding, buffing, and polishing.

The Mathewson Rotary Finisher and Buffer is a compact bench-model machine. It uses a standard hinged roll, and any type of emery cloth, sandpaper or buffing cloth. It is available with or without disc attachment.

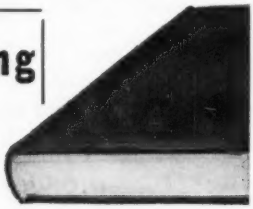


*Mathewson Rotary Finisher and Buffer—used for finishing, burring, sanding, buffing and polishing of a wide variety of products.*

The work rest for the disc attachment is adjustable from 45 to 90 degrees.

Specifications include: 1/3 h.p., 110 v., 60 cycles, 1 phase motor; 1,750 r.p.m., direct drive; overall size, 35 inches long, 12 inches wide, 14 inches high.
For more data circle 19 on Reader Service Card

**Bringing you Modern developments in plating processes and methods**



HERE are the basic theories and principles of electroplating—the practical methods and processes that are of invaluable use to everyone concerned with electroplating and electrotyping. The most efficient methods of making electrodeposits on more than 40 different metals, alloys, and plastics are summarized completely in this thoroughly revised and enlarged book.

**Principles of ELECTROPLATING & ELECTROFORMING**

By William Blum, Chemist, U. S. Bureau of Standards and George B. Hogaboom, Consultant

Revised 3rd Edition
455 pages, 6 x 9
24 tables, illus.
$7.00.

Completely revised to make it a more practical working guide, this book summarizes and digests the best of modern practice in the field. It covers qualitative, quantitative analyses of solutions; pickling, dipping; electropolishing; electroforming, electrotyping; producing phonograph record matrices, and manufacturing tubes, etc. Metals are dealt with in the same order as in the periodic system of elements.
*(Please send check with order)*

**PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio**

## LASALCO'S DAW JUNIOR FULLY AUTOMATIC PLATING MACHINE

**AUTOMATIC UNLOADING!** Only plating machine built from which work is unloaded from racks or wire fingers without operator's attention.

**AUTOMATIC SELECTIVE CYCLING!** Completely automatic by-passing of tanks, or any type of combination cycle can be arranged on the Daw Junior.

**COMPLETELY VERSATILE!** Individual tanks and carrier sections may be quickly removed to shorten machine—or added to lengthen machine. Can be easily installed to fit any unusual or limited floor space. The Daw Junior requires extremely low headroom.

**SAVES PLATING TIME!** Continuously moving cathode permits plating at higher current density thus reducing plating time far below machines with intermittent movement.

**MINIMUM DRAGOUT!** Automatic cam lift between tank-to-tank transfers eliminates solution dragout to absolute minimum regardless of shape or size of workpiece.

**MONEY MAKER!** Daw Junior has proved itself one of the most efficient machines ever developed for plating small and medium size parts with utmost speed and economy.

*Write For Illustrated Catalog*

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St. Louis 4, Mo.
PRospect 1-2990

**LASALCO, INC.**

**IN TEXAS**
1113 Perry Road
Irving (Dallas), Tex.
HLockburn 3-4921

For more data circle 209 on Reader Service Card

## Metal Cleaner

Northwest Chemical Company, 9310 Roselawn Ave., Detroit 4, Mich., has developed a water soluble compound for cleaning non-ferrous metals prior to plating and finishing.

Compound "449" is a "single" compound, and requires little attention in use, it is stated.


**TRUE BRITE BRASS SOLUTION**

A foolproof solution which has been in use over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance In Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

*Write for technical bulletin and prices.*

**TRUE BRITE CHEMICAL PRODUCTS CO.**
Box 31, Oakville, Conn.

For more data circle **210** on Reader Service Card


This material is non-toxic, non-flammable, and harmless to equipment and rack coatings. Hooding and exhaust systems are not required. Compound 449 can be harmlessly drained off into the sewer.

For more data circle **20** on Reader Service Card

★ ★ ★

## Sectional Buffing Wheel

Schaffner Mfg. Co., Schaffner Center, Emsworth, Pittsburgh 2, Pa., has announced a sectional-type buffing wheel.

Two types are available. Type No. 1 is the Schaffner Cloth and Sisal Multi-Tooth Buff. It is designed for heavy and medium metal finishing and for fast cutting and coloring of intricate contoured metal surfaces. These sisal buffs will cut and color metals in a single operation, it is stated.

Type No. 2 is the Schaffner All Cloth Multi-Tooth Buff. It is made of top grade 86/93 bias cut buffing cloth, with each tooth stitched twice to assure greater flexibility of the buff. This buff is designed for cutting and coloring jobs that do not require as sturdy a buff as the sisal Multi-Tooth buff. It can be used for medium to heavy metal finishing jobs.

Both types of buffs utilize double folded tufts to provide maximum cutting surface and hold buffing compound at the leading edges and on the buff's circumference. Teeth are staggered in


**MEET AND BEAT EVERY FINISHING PROBLEM WITH**

**INDUSTRIAL**

INDUSTRIAL manufactures all components of complete finishing systems . . . and makes small batch or conveyor type cleaning and drying machines. INDUSTRIAL equipment in service 20 years is still performing with top efficiency and economy. Tell us your needs; it may pay off big.

ISC INDUSTRIAL Systems COMPANY
Exclusive Sales Agents For: Industrial Washing Machine Corp.
Matawan, New Jersey

For more data circle **211** on Reader Service Card

# the MURRAY WAY MODEL 10 FILTER

**THE AUTOMATIC INDUSTRIAL FILTER THAT RECLAIMS YOUR PRODUCTION DOLLARS**

**AUTOMATIC**—Fresh filtering area rotates into place as contaminate is ejected.

**SELF-CLEANING**—Permanent, pressure-cleaned filter.

**ECONOMICAL**—No costly throw-away filter media.

**COMPACT**—Large filtering capacity—small floor space.

**ADAPTABLE**—May be used on one machine or as central filter with several units.

**LARGE SCREEN SELECTION** — Monel, stainless, brass or bronze screens in various mesh sizes.

*For complete technical details—Write for Bulletin F-5301.*



**Standard Model 10 with 200 mesh screen removing abrasive grindings from #55 viscous coolant oil.**

MURRAY WAY

**MURRAY-WAY CORPORATION**

P. O. BOX 180, MAPLE ROAD EAST · BIRMINGHAM, MICH.

*Polishing, Buffing, Grinding, Filtering Equipment that automatically cuts your costs.*

For more data circle **212** on Reader Service Card

a double row around the buff to prevent streaking. This feature also makes the buff self-ventilating, cool in operation.

All sisal and cloth used in these buffs is cut on the bias to provide greater strength and longer buff life and eliminate the problem of loose ends which can scratch, gouge or cut the surface of the metal to be buffed.

A center composed of two steel disks provides strong support for each buff. A number of venting holes in the steel center assures free circulation of air from the center of buff to periphery.

This buff is suitable for hard and heavy cutting of steel and stainless steel, the manufacturer states.

Sisal Multi-Tooth and cloth Multi-Tooth buffs are available in 10 to 24-inch diameters.

For more data circle **21** on Reader Service Card

## *Burnishing Compound*

An alkaline burnishing compound for zinc die castings has been introduced by Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

Oakite FM 186 is an alkaline liquid compound which may be used for self-tumbling or with shot or synthetic media. Recommended concentration of the solution is 1 to 2 per cent by volume. Its use is said to produce a brighter finish and to improve the color of zinc die castings. It is also recommended for burnishing steel and copper and its alloys.

For more data circle **22** on Reader Service Card

★ ★ ★

## *Acid Additive and Fume Depressant*

A wetting agent and emulsifier developed for use as a rust preventive and corrosion inhibitor for steel is effective


**HERE'S THE ECONOMICAL WAY TO PAINT SPRAY BOOTH EFFICIENCY**

*(Photo Courtesy American-Standard, Elyria, Ohio Plant)*

**. . . with R P Paint Arrestors!**

This converted paint spray booth not only brought real savings in installation and maintenance costs, but also practically eliminated "down-time". Your plant, too, can benefit with R P Paint Arrestor Pads to control paint overspray, economically and efficiently. Write for free booklet, giving information and illustrated suggestions on solving your paint spray booth problems.

RP . . . PRODUCTS OF RESEARCH

**Research Products Corporation**

**Dept. 38, Madison 10, Wisconsin**

For more data circle **213** on Reader Service Card

This electric control center and phosphatizing operation of the Whirlpool Seeger Corporation is part of the Koch-installed finishing system for RCA Estate ranges.

# HOW TO HAVE A *Desk Controlled* FINISHING SYSTEM

*"Yes Sir! This complete finishing system was engineered, built and installed by George Koch Sons, Inc."*

Whirlpool - Seeger uses Koch-installed Flow Coating systems in its Hamilton, Ohio operation.

All operations of washing, phosphatizing, flow coating, spraying, baking, cooling are handled by the Koch Complete Finishing System. Our staff of experts has the facilities for engineering, designing, building and installing whether it is a complete system or a pilot operation. Wood and metal finishing systems are a specialty — not a sideline with George Koch Sons.

**Phone, wire or write Dept. 1-56**

**GEORGE KOCH SONS, Inc.**
**EVANSVILLE 4, INDIANA**
CHICAGO DETROIT

For more data circle **214** on Reader Service Card

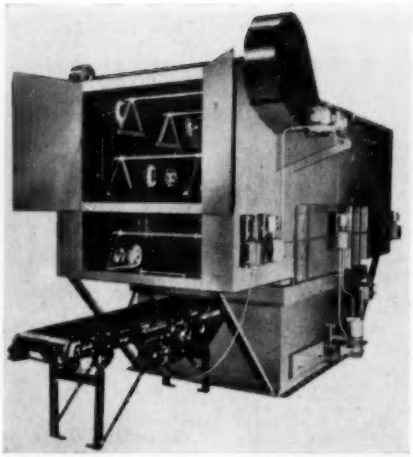
as an acid fume depressant in the pickling bath, states the manufacturer, Swift & Company, Industrial Oil Dept., 1800 165th St., Hammond, Ind.

The product is called Akweons No. 674 and is designed to be added to any sulfuric, hydrochloric or phosphoric acid pickling bath. It is reported to be soluble in all aqueous solutions.

Originally designed as a rust preventive and as a retardant to acid attack on the base metal during the steel pickling process, the wetting agent has shown good results in helping to suppress fumes during the process, it is stated. It is ordinarily added in small quantities directly to the pickle solution and the scrubber acid.

For more data circle **23** on Reader Service Card

★ ★ ★



*Phillips Crossrod Conveyorized Degreaser*

## Conveyorized Degreaser

A conveyorized degreaser has recently been developed by Phillips Manufacturing Co., 3457 West Touhy Ave., Chicago 45, Ill.

It is designed to fit into completely


BISON CORPORATION

**BISON BUFFS**
**are made by**
***BISON CORPORATION***

Air-cooled VENTEX buffs, with permanent or removable metal centers are available for every job!

Precision manufactured on latest, modern equipment in the BISON Canton plant — assuring uniform quality.

COMPLETE SERVICE FOR METAL FINISHING

BUFFS • POLISHING WHEELS • COMPOSITIONS • ANODES
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For more data circle **215** on Reader Service Card

# the KLEM representative

## — *he's in your area to help you*

The next time the KLEM man calls at your plant take advantage of his specialized experience and training in metal surface cleaning and preparation. If you have a problem he may be of help to you on the spot, if not he'll use the KLEM-PLAN to present the facts to our lab technicians who will find a quick answer for you.

**KLEM CHEMICALS INC.**

Dearborn, Michigan
14401 Lanson Ave.

Elmonte, California
1950 No. Central Ave.

**WRITE FOR THE KLEM CATALOG, TODAY**

For more data circle **216** on Reader Service Card

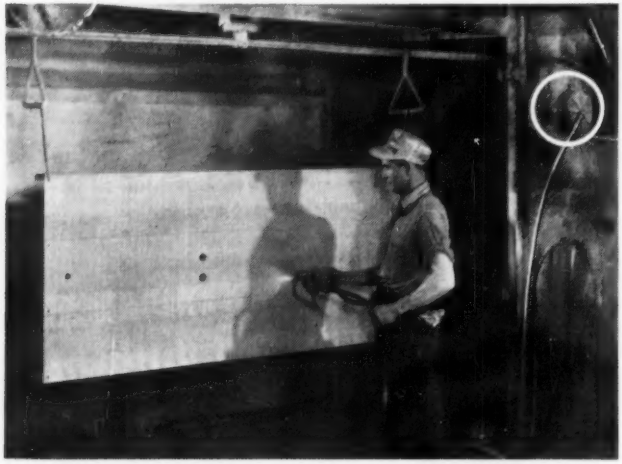
conveyorized systems. Parts arriving from machining and fabricating are fed into the degreaser by means of a motorized conveyor belt at the loading end. Another motorized conveyor at the unload end takes the work off as it emerges from the degreaser. Automatic feed is accomplished by means of special hangers which are located along the inside cross-rod conveyor system in the machine. These hangers pick up work baskets automatically from the feed conveyor, which is activated by limit switches in order to position each basket so that the machine will pick it up.

The unit is available equipped with electric, steam or gas heat. The vapor level is controlled by a water jacket around the tank exterior.

Conveyor speed is approximately 8 feet per minute and capacity of the unit is approximately 3,000 pounds of work per hour. This, however, varies according to the inherent weight of the metal degreased. The degreaser incorporates a complete lubrication system so that it is not necessary to enter the machine to oil the conveyor mechanism.

Machine dimensions are 8 feet 3 inches by 6 feet by 15 feet long.

For more data circle **24** on Reader Service Card



## BETTER QUALITY FINISH...THIRD MORE PRODUCTION AT VOGT IN LOUISVILLE

Vogt Brothers Manufacturing Co., Louisville, Ky., manufactures a wide line of products including shower stalls, power lawn mowers, water works valves and hydrants. Theirs is a typical hot spray success story: Shower stall production was below par in the finishing department. They would not sacrifice quality for quantity. They tried hot spray. Results? Production increased 85 approved units per 8-hour day . . . a one-third increase! And this with only two passes instead of three formerly required . . . and they got a BETTER finish!

The hot spray finish was smoother, with no runs or sags and less orange peel. Vogt Brothers reported better gloss too. Rejects were reduced, and big savings in material were effected. Constant viscosity and low pressure are the two factors that have made hot spray the answer to so many finishing problems.

Find out what hot spray can do for **you**! A free booklet entitled "Why Hot Spray?" is published by the Spee-Flo Co., Dept. P.F. 24, 720 Polk, Houston, Texas.

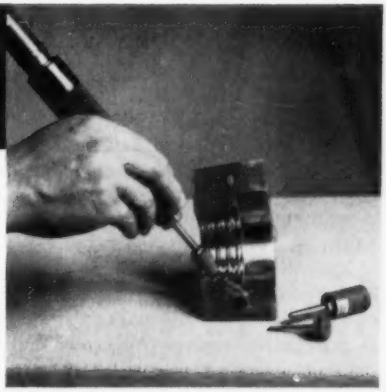
For more data circle **217** on Reader Service Card

# CRATEX

## RUBBERIZED ABRASIVES

*"cushioned action performance"*

## Simplify Your BURRING, SMOOTHING and POLISHING operations



Backed by 30 years of industrial-technical application and extraordinary performance, CRATEX high manufacturing standards insure precision-trued dimensions; uniform textures without hard or soft spots; faster cutting speeds; finishing ability without glaze or smears; smooth effective polishing . . . superior wearing qualities . . . an efficient service-life with dependable, high performance-application. Made in over 160 standard sizes in

## WHEELS · POINTS · BLOCKS · STICKS · CONES

CRATEX Rubberized Abrasives are ideal for Machine or Manual application on

### Hard or Soft Metals

and scores of other materials. Made in four standard "Grit Types" — coarse, medium, fine and extra fine . . . Cratex Rubberized Abrasives are specially adaptable after dimensional grinding or shaping —for burring, smoothing, polishing, cleaning, blending, lapping, and finishing. Truly The World's Finest For Industrial Use.

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which presents the wide adaptability, versatility and application of Cratex Rubberized Abrasives, with complete specifications and prices. This catalog is the most complete ever published on the modern use of "cushioned action" abrasives.

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**81 Natoma St., San Francisco 5, Calif.**

Without any obligation please send us—

- ☐ Descriptive Catalog.
- ☐ Application Analysis Form.

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STREET _____

CITY _____ ZONE _____ STATE _____

For more data circle **218** on Reader Service Card

## Chromate Sealer

A chromate sealer, Kenvert No. 32, especially designed to eliminate "spotting-out" on thin copper and brass plate has been announced by the Conversion Chemical Corporation, 102 E. Main St., Rockville, Conn.

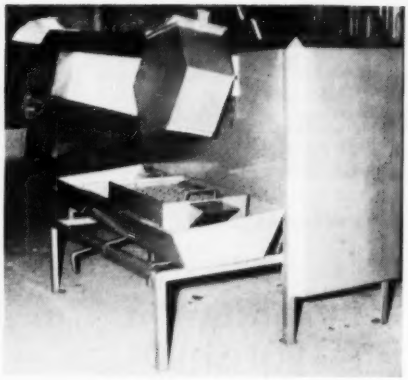
Kenvert No. 32 is also recommended for sealing copper, brass and porous castings without attacking the metal. It prevents staining and fingerprinting prior to lacquering and improves adhesion of lacquer films, it is stated. Simple to use, Kenvert No. 32 is also recommended for buffed surfaces.

For more data circle **25** on Reader Service Card

★ ★ ★

## Multiple-Unit Barrel Finisher

The Ultra Sheen Division of B. W. McIntyre Company, 7031 Darby Ave., Reseda, California, has announced a tumbling machine suited for deburring, burnishing or drying.



*Ultra Sheen Multiple-Station Barrel Finisher*

Called the "Johnny," it is available with 9 by 12-inch or 11 by 16-inch open-end, or 7 by 16-inch closed hexagonal barrels (two or four stations). These units operate horizontally for maximum slide action or are readily adjustable to less acute angles for controlled action.

The machines are designed so that the working barrels may remain in operation while the idle segments are being loaded or discharged. The barrels are lined with live rubber and the units have a built-in drain trough.

For more data circle **26** on Reader Service Card

★ ★ ★

## Burnishing Powder

Wyandotte Chemicals' recently-developed burnishing product for ferrous parts — Burnek 452 — is non-foaming even at high concentrations, the manufacturer states.

The product is said to be non-dusty, to produce high luster in minimum time, to be usable in any kind of water, to dissolve completely in cold water and to rinse freely with cold water.

**FUNCTIONAL FINISHES!!**

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity —

*Try Us!*

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

**The Varnish Products Co.**

**5204 Harvard Avenue**
**Cleveland, Ohio**

For more data circle **219** on Reader Service Card

# RED LABEL DARCO®*

## keeps your bath clean

## and your SHOP too!

*Quick-wetting* DARCO activated carbon is a cinch to mix in slurries or into plating solutions in treatment tanks. It wets quickly . . . doesn't float on top of the liquids. It eliminates problems of carbon dust getting into plating tanks or on electrical contacts.

**Saves Anode Metal . . . Stops Rejects**

Nickel is still scarce. You can help conserve it with Red Label DARCO S-51, the one carbon especially developed and made for removing harmful impurities from plating baths. It's the leading choice of the plating industry. Distributors throughout the country can give you prompt delivery, in convenient 10-lb. and 50-lb. cartons. Order now . . . and be sure to ask for DARCO by name.

*Made exclusively for the Plating Industry.

**DARCO IS MADE BY**

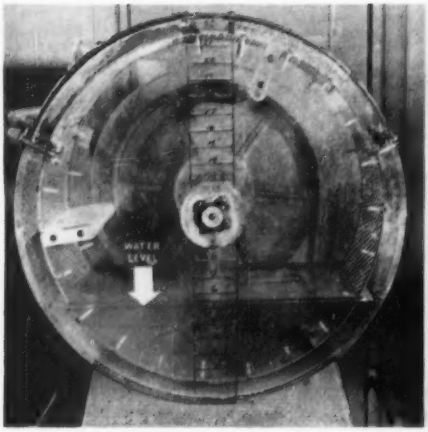
*Chemicals Division*

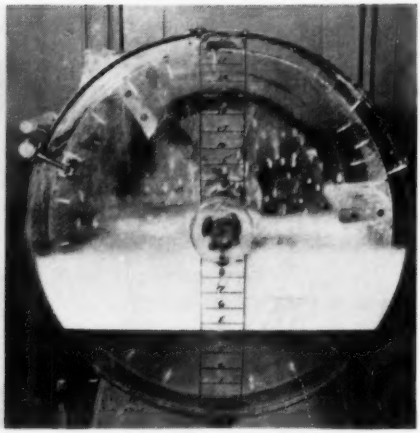
**ATLAS POWDER COMPANY**

Wilmington 99, Delaware

Atlas Powder Co., Canada, Ltd., Brantford, Ontario, Canada

For more data circle **220** on Reader Service Card



*Solutions of Burnek 452 and another burnishing powder (each 2 oz./gal.) were placed in similar plastic wash wheels. Wheels were then run for 2 minutes at 36 r.p.m., reversing every 9 revolutions. Photographed immediately after this intense agitation, Wyandotte's burnishing powder (at left) showed no suds. (Right) Another powder forms suds.*

Lightly soiled work requires no precleaning, since Burnek 452 has detergent properties of its own. This material is produced by Wyandotte Chemicals Corp., Wyandotte, Mich. Wyandotte's new product has been fully field tested for over two years in plants.

For more data circle **27** on Reader Service Card

★ ★ ★

## Corrosion Tester

An instrument designed to measure rapidly the corrosion rate of metals subjected to corrosive liquids or gases has been announced by Labline, Inc., Chicago, Ill. It can be used to predict in a matter of hours the amount of corrosion that will take place in five to ten years of field use, the manufacturer states.

The Labline-Pure Corrosion Tester is basically a sensitive electronic Wheatstone bridge circuit. Probes have one protected corrosion strip and one exposed corrosion strip. Automatic temperature compensation is obtained from the protected strip. Corrosion on

**DERMITRON**

***NON-DESTRUCTIVE***
**THICKNESS TESTER**

FOR METALS ON METALS • NON-CONDUCTORS ON METALS • METALS ON NON-CONDUCTORS

Fast • Accurate • Compact • Portable • Direct Reading
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75 EAST FOURTH ST. • NEW YORK 3, N. Y.

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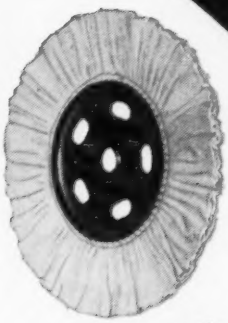
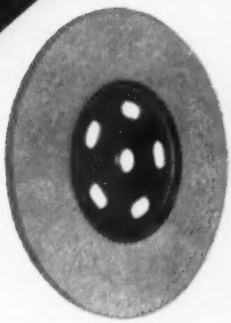
# FORMAX

*the Perfect Combination*

**FROM START TO FINISH**





## ZIPPO CLOTH BUFFS

These famous long-wearing buffs run cool under all buffing conditions. High count bias-cut cloth is assembled on ventilated steel centers. Each section is perfectly balanced and faced—requires no raking.

## BUFFING COMPOUNDS

Formax produces a complete line of buffing compounds in bar, tube and liquid form.

Our extensive manufacturing, laboratory and testing facilities are at your disposal.

## ZIPPO SISAL BUFFS

You have a pleasant surprise coming if you haven't tried the new Zippo bias-type sisal buff. It was specifically developed for steel buffing—to blend polishing grit lines—to cut down stainless steel—and bring up a bright lustre.

Other Formax products include the well-known C-20 Flexible Contact Wheels and F-26 Abrasive Belt Grease Stick.

***Descriptive Catalogs Sent on Request***

# FORMAX MFG. CORP.

**DETROIT 7, MICHIGAN**

**"THE FOUR McALEERS"**

For more data circle **222** on Reader Service Card

METAL & THERMIT

**offers...**

→ **good income**

→ **recognition**

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→ **stimulating work**

→ **security**

***. . . in these new sales and service openings***

**N. J.**—*Senior Plating Service Engineer*

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**N. Y.** (Rochester-Syracuse)—*Senior Plating Sales Engineer*

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**Mich.** (Grand Rapids)—*Sr. Plating and Organic Coating Sales Engineer*

**Ind.** (Western)—*Senior Plating Sales Engineer*

**Ill.** (Chicago)—*Sr. Plating and Organic Coating Service Engineer*

**Calif.**—*Sr. Plating and Organic Coating Service Engineer*

EXPERIENCE in plating or organic coating sales or service work, or in a metal finishing department is required. Qualified applicants will sell and service the Unichrome line of metal finishing processes and products, including SRHS® Chromium, Bright Nickel, Pyrophosphate Copper, Rack Coatings, Plastisols, Protective Coatings, Lacquers and Enamels, and Plating Equipment.

If you're interested, write in confidence, to our Director of Personnel and Industrial Relations outlining your qualifications.

UNICHROME

**METAL & THERMIT**
**CORPORATION**
GENERAL OFFICES: RAHWAY, NEW JERSEY



the exposed strip causes the meter to register corrosion in micro-inches.

Probes holding the protected and unprotected metals are available in all types, for long or short test periods. Probes are designed for high or low temperature testing, in lab or field.

***Labline Instrument Predicts Corrosion Rate***

Standard models are wired for 115 volts, 60 cycles, a.c., but may also be obtained with d.c. converted.

Some of the potential applications are: (1) Determining the corrosion rate of materials to be used in chemical reactors, mixers, processing lines of various types; (2) determining the corrosion inhibiting characteristics of rust inhibitors added to auto radiators and other equipment, such as boilers; (3) determining the effectiveness of cathodic protection devices.

The Labline-Pure Corrosion Tester may be used to determine the best materials for various corrosive atmospheres and conditions.

Bulletin No. 5200 is available from Labline, Inc., 3070-82 W. Grand Ave., Chicago 22, Ill.

For more data circle **28** on Reader Service Card

# FOR PRECISION STOPS . . .

# IN SELECTIVE PLATING . . .

**MICCROSTOP**

. . . is designed to achieve an accurate line of demarcation in all plating cycles. It will go through cleaners and hot solutions without losing its exceptional adhesion, unsurpassed on sharp edges. The finest all purpose stop-off lacquer on the market today.

**MICCROMASK**

. . . is specifically designed for maximum adhesion in hard chrome plating. It will hold to a fine line and may be easily removed after plating. Dries rapidly. Multiple coats will take any long cycle without treeing.

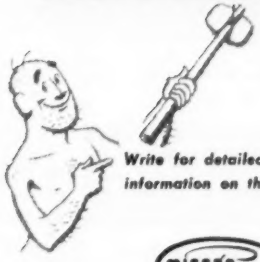
*Note: Both MICCROSTOP and MICCROMASK may be removed easily in MICCROSTRIP A.*

**MICCROWAX**

. . . C-562 is the outstanding product for the most efficient method of selective hard chrome plating. Melting at 180°F, it is especially applicable for flat surfaces and sharp edges, where dipping is feasible.

. . . C-600 will take all plating cycles without losing adhesion. Melting at 300°F, it is not affected by temperatures, acids, or caustics used in any plating operation.

***Both MICCROWAX C-562 and C-600 may be reused. Only one dip tank is required. Both harden immediately, cutting down application time to a minimum.***



***Write for detailed bulletins giving full information on the above products.***

MICCRO Products

**MICHIGAN CHROME**
*and Chemical Company*
8615 Grinnell Avenue • Detroit 13, Michigan

For more data circle **224** on Reader Service Card

## Portable Hot Spray Heater

The Spee-Flo CP-1 Mobilkit has been added to the Spee-Flo line of Circaflo hot spray heaters, for use as a portable unit. The CP-1 Mobilkit gives maximum portability and permits taking hot spray to remote jobs.

*Spee-Flo CP-1 Mobilkit Hot Spray Heater*

The CP-1 matches the standard Ciraflo frame. Two eight-inch rubber tired wheels are attached to the frame, and a handle is attached to the electric junction box to complete the unit. Fifty feet of electric cable are included. Literature on hot spray is available from the Spee-Flo Co., Dept. PF, 720 Polk, Houston, Texas.

For more data circle **29** on Reader Service Card

★ ★ ★

## Spray Booth Coating

A vinyl plastic protective coating that can be sprayed or brushed on paint spray booths has been announced by Klem Chemicals, Inc., 14401 Lanson Ave., Dearborn, Michigan.

*Strippable Spray Booth Coating being removed*

The product, named "Zip Kote," can be peeled off, removing paint deposit and leaving the booth clean.

It is reported that this product offers several other advantages: it dries quickly; it is white in color, providing reflective light in the booth; it will not support combustion when dry; it has high tensile strength, peeling off in large sheets; it does not lose its elasticity even when subjected to heat as high as 290 deg. F. for a long period.

"Zip Kote" also can be applied to other equipment to protect it in use and storage.

For more data circle **30** on Reader Service Card

★ ★ ★

## Roller Coater

A bench-type roller coater for applying paints, enamels, lacquers, adhesives and other coatings to metal sheets has been announced by L. R. Wallace & Co., 191 N. Pasadena Ave., Pasadena 3, Calif.

PRODUCTS FINISHING directory

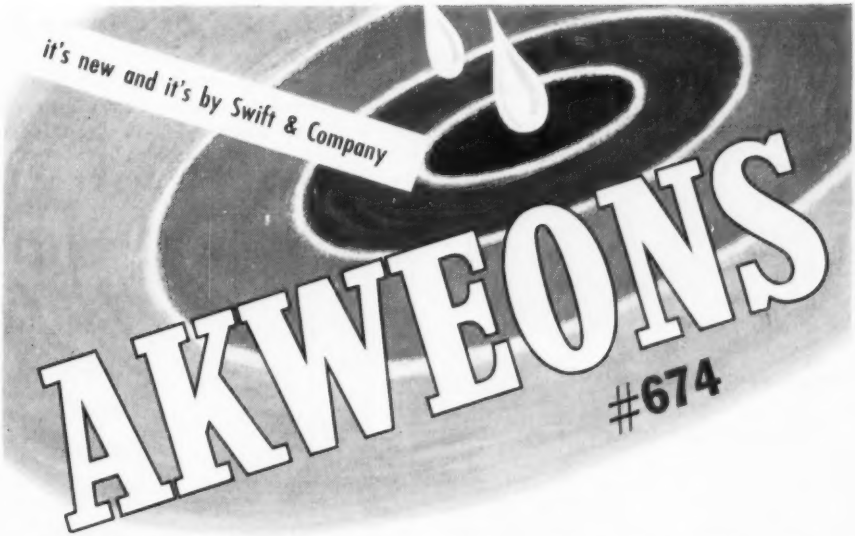
source book for:

EQUIPMENT
MATERIALS
PROCESSES

used in the Finishing Industry—

Electroplating,
Paint Finishing,
Porcelain Enamel,
Vacuum Metalizing.

PRODUCTS FINISHING directory—




Pickled without AKWEONS

Pickled with AKWEONS

**Here are the important features of AKWEONS #674:**

- Rust preventive properties
- Helps retard corrosion
- Fume depressant
- Helps minimize loss of base metal to acid attack
- Can be used in small quantities
- Saves acid (according to users)
- Soluble in acid, alkaline or neutral solutions

Swift
101 ST YEAR

*To Serve Your Industry Better*

## ...an outstanding acid additive and fume depressant!

AKWEONS #674 is a new wetting agent and emulsifier developed for use in sulphuric, hydrochloric or phosphoric acid baths. While the basic purpose of AKWEONS #674 is to retard attack by the acid on the parent metal without affecting the acid's action on surface impurities, it also exhibits excellent fume depressant and rust preventive properties. The overall results are a great reduction in fuming, substantial acid savings and less weight loss in the metal.

There is only one way to find out what AKWEONS #674 can do for you and that's by a trial in your own plant. Use the coupon below to get full information on the special introductory trial offer. It's easy and inexpensive and we believe you'll find that . . .

ONE TRIAL IS BETTER THAN A THOUSAND CLAIMS

**RETURN THE COUPON**

For information on a trial order. There is no obligation — except that AKWEONS #674 be used as directed to insure optimum results.

SWIFT & COMPANY, Industrial Oil Dept.
1832 165th St., Hammond, Indiana

Please send further information on a trial order of AKWEONS #674.

Name .....

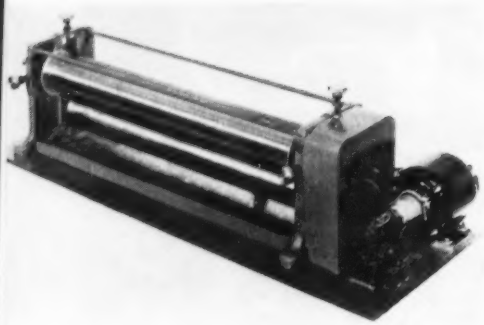
Company .....

Address .....

City ..... Zone ... State .....

Principal process is: .....

For more data circle **225** on Reader Service Card



*Wallace Bench-Type Roller Coating Machine*

Rolls on the machine are power driven by a ¼-h.p. motor with a gear reducer. Rubber rolls are available in Neoprene, Hy-Car or Thiokol. Spring-loaded discs at the ends of the rolls confine coating materials to the reservoir area.

Models are available for applying a single top coating, a single bottom coating, and for applying a double coating. Lengths produced: 8 to 52 inches. Grooved rolls for heavy adhesives and feeder and take-off conveyors with dryers are also available.

For more data circle **31** on Reader Service Card

★ ★ ★

## Anodizing Rack

An anodizing rack recently announced by Service Products Company, 131 N. Green St., Chicago, Ill., can be assembled without tools in the plant and is said to have increased capacity.

*Service-Rack for Anodizing*

The patented unit utilizes a principle of operation which makes handling easier. It makes possible the processing of many different parts by rearrangement of the simple components to accommodate various shapes and sizes.

This flexibility of arrangement is helpful in minimizing space devoted to rack storage. A reasonable stock of parts will suffice for making of special racks quickly.

The adjustability of the Service-Rack will help to ensure more uniformly anodized parts. The mechanical and electrical contact is positive, uniform and adjustable for wear, it is stated. Hand-forming of tines to accommodate new parts or to increase the holding power of worn racks is eliminated.

To de-rack, it is only necessary to remove the locking wedges and shake the rack. The load can be completely

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for all industrial screening... and for printed electrical circuits

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PROMPT SERVICE
PRECISE REGISTRATION
PROOF SHEET WITH SCREEN

Send Black and White Copy—
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Cincinnati SCREEN PROCESS SUPPLIES, INC.
43 Walnut Street
Cincinnati 2, Ohio

For more data circle **226** on Reader Service Card

## CHURCHILL FINGER-BUFF*

### #150 DN *Specifically Developed for Buffing*

## DIE CASTINGS

Each section made with a double row of overlapped and staggered fingers. Fingers of adjacent sections meld and fit together very compactly. This specialized construction absolutely eliminates all streaking and gouging, and gives exceptionally fast cutting action. The #150 DN is ideal for buffing die castings. It allows great flexibility to working surfaces and thereby gives a smooth finish to irregular shapes.

- Churchill Finger-Buffs* are competitively priced. Produced in all sizes from 4" to 21" diameters. For complete information write your problem.

*Churchill Finger-Buff, T.M. Reg. U. S. Pat. Off.

*REPRESENTATIVES IN PRINCIPAL CITIES*

**Geo. R. Churchill Co., INC.**

FREE Catalog

Dept. PF, Hingham, Mass.

Please send me FREE Catalog and complete information. My special buffing problem is .....

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Firm .....

Street .....

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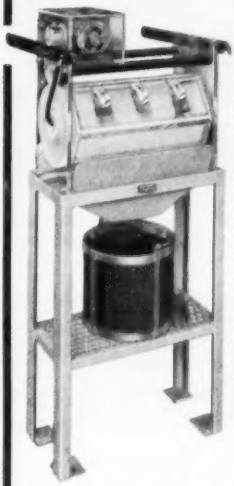
For more data circle **227** on Reader Service Card

## STUTZ PORTABLE PLATING BARRELS



The Stutz Portable Barrel is made in 2 standard sizes with cylinders having ing inside dimensions of 6" x 12" and 8"x18", I.D., and smaller upon application. Standard opening can be furnished as required.

- Baskets in perforated metals or wire mesh.
- Load/Unload Stand for convenient and fast handling of work load.

**MADE IN TWO STANDARD SIZES**

| | |
|---|---|
| 6" x 12" I.D. | $186.50 |
| 8" x 18" I.D. | 295.00 |
| Stand | 39.50 |
| Perforated Metal | 9.15 |
| Wire Mesh | 6.15 |

**We invite your inquiries.**

**GEO. A. STUTZ Mfg. Co.**

4410 Carroll Ave. • Chicago 24, Ill.

***Serving Industry 35 Years***

For more data circle **228** on Reader Service Card

*Conventional anodizing rack (left) holds maximum of 40 parts. Service-Rack holds 240.*

de-racked quickly. It is unnecessary to remove parts individually.

For more data circle **32** on Reader Service Card

★ ★ ★

## Acid-Proof Silicate Mortar

A corrosion-proof mortar, Corlok, has been announced by the Pennsylvania Salt Manufacturing Company. A silicate bonding material, it is designed for the installation and maintenance of stack linings and acid tanks.

Corlok withstands strong oxidizing acids, nitric, chromic and concentrated sulfuric, and is resistant to sulfation and highly concentrated acids at temperatures up to 1,900 deg. F., the manufacturer states. The product is noncorrosive to metals and will not react with lead or chrome-nickel alloys.

Pennsalt recommends this product for laying acid-proof brick or tile, for structures in which maximum bond strength is essential, and where improved impermeability is desired.

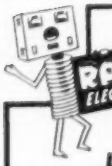
Product data sheets on Corlok are available from the Pennsylvania Salt Mfg. Co., 3 Penn Center Plaza, Philadelphia 2, Pa.

For more data circle **33** on Reader Service Card

★ ★ ★

## Degreaser

A degreaser, designated the OP3, is specially designed for cleaning parts that have a tendency to nest or pack,


**SELENIUM RECTIFIERS**

*. . . built to your Specifications.*

**INDUSTRIAL AND LABORATORY USE.**

- *ELECTROPLATING*
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**STRIPPING COPPER**

*with*

*McKeon's "Liquid Sulphur"*

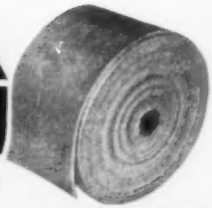
Economical, fast, non-electrolytic.

***Sulphur Products Co., Inc.***
McKeon Bldg., 621 W. Pittsburgh St., Greensburg 6, Pa.

For more data circle **230** on Reader Service Card

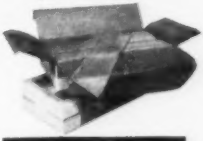
# Bond® TACK CLOTH

**PACKED IN ROLLS OR IN BULK JUST THE WAY YOU WANT IT!**



**IN ROLLS**

Cut off any size piece as needed.



**IN BULK**

Size is 18" x 56"—folded to 4½" x 18" for ease of handling. Cut and folded—ready to use.

Also Individually Packed in Glassine Envelopes —144 to the carton—

**Stays Soft and Tacky — A SPECK-FREE FINISH EVERY TIME — Now available in white or gold — in Three Different Types of Cloth.**

There's a big difference in TACK-CLOTHS—that's why BOND processes three different meshes of cloth with several types of formulations to give you the cloth that best "fits" your special needs. You can get BOND TACK CLOTH packed just the way that suits you best, too—in 150 yard Rolls of 36" wide cloth or in handy Cartons.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up.

*All BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free and Wax-Free.* Gives a sparkling speck-free finish every time. Clean and Sanitary. No waste.

TRY THEM AND COMPARE RESULTS. Samples gladly sent upon request.

A WARRANTY OF SATISFACTION IN EVERY CARTON

Bond® **CHEMICAL PRODUCTS CO.** 2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS

*"The Tacky Wiper Specialist"*

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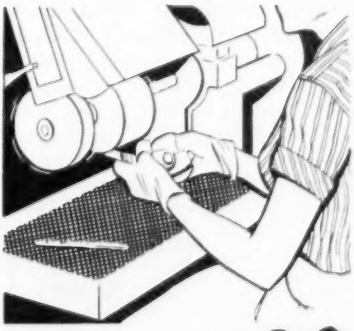
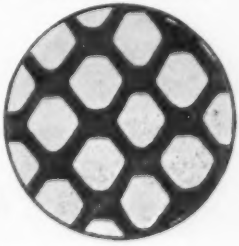
# PROTECT FINE PLATED SURFACES



*with* **RP** *Neotex*

Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.

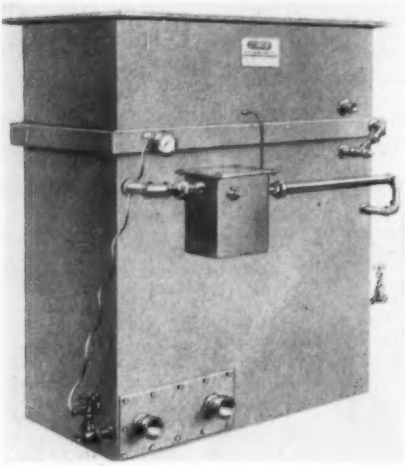
RP® *Neotex*



**RESEARCH PRODUCTS CORPORATION**

Dept. 76, Madison 10, Wis.

For more data circle **232** on Reader Service Card



*Circo Degreaser is especially designed to clean parts that tend to nest or stack*

or parts that have recesses difficult to penetrate with a hand spray. The OP3 cleaning cycle is based on a consecutive boiling solvent, warm liquid, and vapor dip. It is said to remove tightly adhering greases, oils, tripoli and rouges from metal parts.

A bulletin describing the unit's operating characteristics, solvent flow and distilling action is available from Circo Equipment Co., 51 Terminal Ave., Clark (Rahway), N. J.

For more data circle **34** on Reader Service Card

★ ★ ★

## Barrel Deburring Compound

Oakite FM 183, an alkaline material designed for use in barrel deburring small parts, has been announced by Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

Oakite FM 183 combines a fine, fast-cutting abrasive with surface active agents designed to keep media bright and sharp. Its use, alone or with stones, is said to save time and in many cases to eliminate individual handling of parts and hand filing. Used in concentrations of 1 to 5 oz./gal. of water, Oakite FM 183 is designed for deburring stamped or machined parts, grinding off sharp edges, removing tarnish, rust, and heat scale, improving surface finishes, and deburring steel and zinc.

For more data circle **35** on Reader Service Card

For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

**DETRO SALES CO., INC.,** *Culver City, Calif.*
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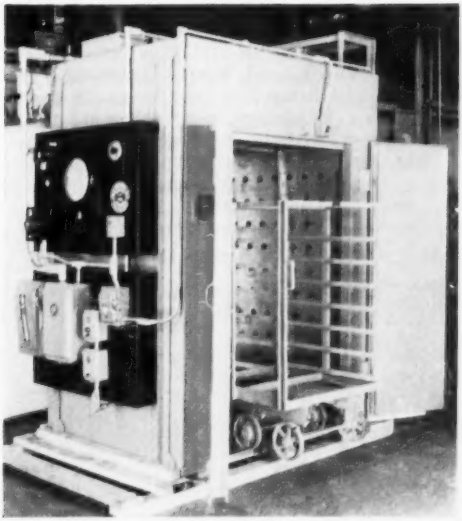

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# News of the Industry

***New plants . . . company news . . . new positions . . . meetings . . . training courses . . . honors . . . societies***

## NEW PLANTS

**Shell Chemical Corporation,** New York, N. Y., has broken ground for a two-story addition to its technical service laboratory in Union, New Jersey. The new building will contain approximately 25,000 square feet of laboratory and office space.

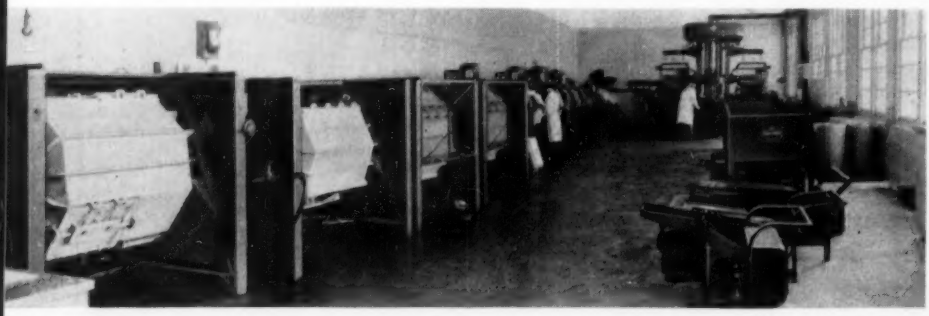
★ ★ ★

R. C. Trow, vice president, **Almco Division of Queen Stove Works, Inc.,** has announced completion of a barrel finishing research and development laboratory located at Albert Lea, Minnesota, headquarters for the Supersheen line of barrel finishing equipment and supplies.

Purpose of the laboratory is twofold. First, it offers modern facilities for determining, without obligation, effective deburring and finishing methods for all types of parts. Sample processing of actual parts will be offered free of charge to manufacturers. Second, it provides the industry with machines and equipment for advancement of barrel finishing research.

This new Almco laboratory features three major types of barrel finishing machines: standard machines, "submerged" units, and fixture equipment of varied barrel diameters and lengths; and, in addition a six-station Sub-O-Matic "Submerged" System — three twin barrel machines.

This Sub-O-Matic System is the first automated barrel finishing system available for sample parts processing. Utilizing automatic cycling of submerged-type finishing barrels and tanks, it is similar to the Sub-O-Matic systems now being used by leading manufacturers for high production metal finishing requirements.



*View of main bay of new barrel finishing research and development laboratory at Almco.*

The new laboratory is the central facility for the Almco engineering organization which includes other barrel finishing laboratories and sales offices in Detroit, Los Angeles, Newark, New Haven, and Philadelphia. Recently, plans were completed for an Almco barrel finishing laboratory in London, England.

★ ★ ★

**Sulphur Products Company,** Greensburg, Pa., has moved its main office to the McKeon Building at 621 West Pittsburgh Street.

Additional warehouse space at the new location will enable the company to maintain greater stocks and ensure better service to its customers.

Sulphur Products Company has been a familiar name in the plating industry for over a third of a century. The company produces a number of proprietary chemicals especially for this industry. McKeon's "Zinc-Brite," "Liquid Sulphur," "Black 'N Brass," and "Tin Strip," are among the company's products.

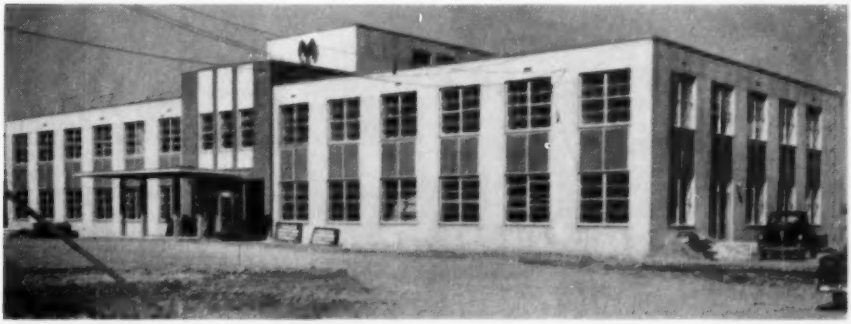
★ ★ ★

At an open house and luncheon on June 20, attended by approximately 700 people, **Metal & Thermit Corporation,** Rahway, N. J., dedicated its new general office building, recently completed as part of a $2,500,000 combined general office, research and distribution center, in the Woodbridge-Rahway area of New Jersey.

The affair was planned as an open house to welcome employees and their families who were recently moved by Metal & Thermit from New York to New Jersey.

*Guided tours of the new office building followed ceremony and luncheon. Left to right here are Donald C. Luce, president, Public Service Electric & Gas Co.; William H. McLean, president, Chemical Div., Merck & Co., Inc.; H. E. Martin, president, Metal & Thermit Corp.; Robert B. Meyner, Governor of New Jersey; Dr. C. K. Banks, director of M & T Research.*

The ceremony was held in a large tent erected on the grounds adjacent to the new office building, and featured talks by H. E. Martin, Metal & Thermit president, William H. McLean, president, Chemical Div., Merck & Company, Inc., and Robert B. Meyner, Governor of New Jersey.



*Metal & Thermit's new building: combined general office, research and distribution center.*

## COMPANIES

**Instituto Electroquimico,** S. A. of Barcelona has been appointed Spanish representative of **The Roto-Finish Company** of Kalamazoo, Mich., to handle Roto-Finish machines and equipment.

Roto-Finish manufactures a line of machines, chips, and compounds for barrel finishing operations.

★ ★ ★

**General Coating Company,** Woodbridge, New Jersey, has been appointed a franchised applicator of Unichrome 5300 series materials, sprayable plastisols made by the **Metal & Thermit Corporation,** New York City, according to an announcement by D. R. Meserve, assistant sales manager, electroplating and coatings division.

★ ★ ★

The first, full scale International Conference on Industrial Cleaning ever held in this country was conducted by the **Magnus Chemical Company, Inc.,** Garwood, New Jersey, from May 28 through June 1. The theme of the conference was "an exchange of worldwide industrial cleaning 'know-how'."

The meetings during the week-long conference were devoted to the following subjects: Marketing and Technical Service, Sales Management, Manufacturing Methods—Equipment & Standards, Use of Magnus Cleaning Machines and Methods in American Industry, Cleaning in Aviation, Marine and Railroad Industries.

The Magnus Chemical Company, Inc. manufactures more than 200 kinds of cleaning compounds for all types of manufacturers in every industrial field. The Magnus world-wide organization is represented in each of the following countries: Australia, Brazil, Canada, Cuba, England, France, Germany, Hawaii, Italy, Japan, Mexico, Norway, South Africa, Spain and Venezuela. Representatives from many of these countries were in attendance at the conference.

★ ★ ★

Patent No. 2,739,838 has recently been issued to John Sedlacsik, owner, **Scientific Electric,** Garfield, New Jersey. The new patent relates to apparatus for electrostatically spraying conductive materials without high-voltage feed back. The patent will be accessable to users of Scientific Electric's line of "Ionic" electrostatic spray systems.

*View of Magnus executives and foreign representatives at first International Conference*

Representatives of three distributors recently visited the Coated Abrasives Division, **Armour and Company,** Alliance, Ohio. They were taken on a tour of the plant and shown new product demonstrations in the research laboratories. The companies represented were: Flack Equipment Company, Dayton, Ohio; Tri-Co Cool Company, Cuyahoga Falls, Ohio; and Cornell Company, Marion, Ohio.

★ ★ ★

"The facts that free world nickel production will probably increase and that purchasing for stockpile may be moderated suggest that there should be more nickel available for industry in 1956 and even more in 1957." So stated **Dr. John F. Thompson,** chairman of the board in comments before the Annual Shareholders' Meeting of the **International Nickel Co., Inc.,** New York, N. Y. Free world nickel output for 1956 was estimated by Dr. Thompson at about 445,000,000 pounds, a gain of some 15,000,000 pounds over 1955.

"Since the end of World War II," Dr. Thompson noted, "Canadian nickel producers have increased their annual rate of production by some 95,000,000 pounds, of which International Nickel accounted for 55,000,000 pounds. The gain in Canadian output has been the greatest factor in the total increase in the free world's supply. During this period, the increase from other sources such as New Caledonia, Cuba and the United States, has also been considerable.

Dr. Thompson stated that the "consumption of nickel by uses in the free world in 1955 was approximately as follows: stainless steels, 30 per cent; engineering alloy steels, 17 per cent; high-nickel alloys, 16 per cent; electroplating, 15 per cent; copper-base alloys, 6 per cent; jet engine alloys, 5 per cent; cast irons, 5 per cent, and industrial chemicals and miscellaneous, 6 per cent. This consumption was fundamentally affected by the abnormal conditions arising through defense and stockpile requirements and inadequate supply."

**William Young** and **Richard K. Evans** have announced the formation of **Bill Young & Company, Inc.** The new corporation is located at 7124 Montgomery Road, Cincinnati, Ohio, and distributes metal finishing supplies and equipment in Ohio, Indiana, Kentucky, Tennessee, West Virginia and Virginia.

*Richard K. Evans*

*William Young*

Mr. Young has been active in the metal finishing industry for many years, serving as superintendent of maintenance at the Evansville Chrysler Plant, sales engineer for Udylite Corp., and manufacturers' representative for Wagner Brothers, Inc. He is an Electrical Engineering graduate of Detroit Institute of Technology.

Mr. Evans has been associated with Mr. Young for the past 3½ years. He was chemical engineer at the Buckeye Bumper and Sharonville Divisions of the Electric Auto-Lite Company. He is a Chemical Engineering graduate of the University of Cincinnati.

Bill Young & Company, Inc., represents a number of well-known metal finishing supply and equipment manufacturers, thus enabling the company to offer a complete line of supplies and equipment to customers.

★ ★ ★

**Hercules Powder Company's** central research laboratories near Wilmington, Delaware, have just completed twenty-five years of operation.

The expansion of research and de-

velopment activities at Hercules' Experiment Station has resulted in a new name: Hercules Research Center—which more accurately portrays the nature and breadth of the company's research program at this location.

Located seven miles west of Wilmington, Delaware, Hercules Research Center today employs approximately 750 men and women, under the direction of Dr. Peter Van Wyck. Most of the staff are specialists and technicians, and almost 300 of them professional scientists and engineers. In 1931, there were 125 employees, most of whom were transferred from Hercules' laboratories at Kenvil, N. J., established in 1915.

The heart of Hercules Research Center is its technical library, for which a new million-dollar building is now being erected. Approximately 17,000 technical volumes are maintained in the library to serve as a starting point for exploratory research and a checkpoint for all phases of research and development.

★ ★ ★

"Manufacturers and design engineers looking for a way to add sales appeal to their new product lines are turning more and more to aluminum."

This fact was emphasized by Guy A. Cummings, metal finishing sales manager, **Frederic B. Stevens, Inc.,** Detroit 16, Michigan, recently when he reported: "A trend is developing. Volume of our Stevens automatic anodizing and bright dipping installations for aluminum sold during 1955 was more than double the volume for the two preceding years of 1953 and 1954.

"During the same period, sales of Stevens compositions used in buffing and polishing of aluminum were showing a 50 per cent increase.

"Speeding the change is the continued tight supply of nickel."

Stevens aluminum anodizing equipment was recommended and sold in 1955 for such varied purposes as the finishing of colored anodized tumblers, automotive grilles and trim, refrigerator evaporators and other components, lighting reflectors, and utensils.

**Commercial Filters Corporation** of Melrose, Massachusetts, has announced the merger of two filter lines — Honan-Crane and Michiana—to form a new subsidiary, **Indiana Commercial Filters Corporation.**

This action follows the Massachusetts firm's recent purchase of Houdaille-Hershey of Indiana, Inc. (makers of Honan-Crane filters) and the Filter Div. of Michiana Products Corp.

Honan-Crane and Michiana manufacturing, research and engineering facilities will be consolidated at Lebanon, Indiana. The Honan-Crane and Michiana filter lines will be retained under their present names while a new brand name—"CFC"—will identify filtering and conveying equipment formerly known as "Houdaille."

With the acquisition of Honan-Crane and Michiana assets, Commercial Filters Corporation has become the largest industrial filter operation in the country.

An integrated sales organization has been established to market the products of both companies.

To head the sales organization, R. L. Fielding, president of Commercial Filters, has announced the election of **Charles I. Wallace** as vice president in charge of sales. Mr. Wallace is also vice president and general manager of Indiana Commercial Filters Corporation with headquarters at the Lebanon, Indiana plant.

Other key appointments include:

**J. R. Chisholm,** from assistant sales manager to sales manager, Commercial Filters, Melrose, Mass.; **Walter J. Holder,** formerly Chicago district manager, to sales manager, Indiana Commercial Filters, Lebanon, Ind.; and **R. N. Burckhalter,** to sales manager for Michiana Filters with offices in Chicago.

★ ★ ★

A joint sales conference of Eastern and Midwestern technical service representatives for **Maas & Waldstein Co.,** Newark, N. J., was held in conjunction with a celebration of the company's 80th anniversary at the Essex House Hotel, Newark.

At the celebration, **Dr. G. Klinkenstein,** president of the company, presented two awards: **K. A. Smiley,** technical sales representative, received an award of a vacation in Bermuda for showing the greatest sales progress in 1955; **J. J. Dowd,** purchasing agent, was given a special award on reaching 40 years of service with the firm.

★ ★ ★

**Detrex Chemical Industries, Inc.,** formerly Detrex Corporation, has completed the transfer of all outstanding capital stock from the previously, jointly-held, Hooker-Detrex Incorporated, and has also completed the merger of the Detrex Corporation, Hooker-Detrex Incorporated, and the Detrex Realty Company into Detrex Chemical Industries, Inc., Detroit, Michigan.

As a result of these negotiations, Detrex will own and operate the entire facilities at Ashtabula, Ohio, which are devoted to the manufacture of trichlorethylene and anhydrous hydrogen chloride. Detrex has also secured for sale the trichlorethylene production of the Tacoma, Washington, plant.

★ ★ ★

Manufacturers of dies have found a unique use for Krylon's spray aluminum paint, **Krylon, Inc.,** Norristown, Pa., producer of spray protective coatings, has announced.

Die makers have been using the Krylon spray aluminum to coat the inside of case-hardened expensive dies before shipping them to customers.

James W. Bampton, Krylon president, said the spray aluminum coating serves two purposes: to dress up the die; and, to protect the inside of the die so that it will not rust and the high polish of the finished die will remain intact.

Die makers explain that an expensive die is case-hardened, and consequently, it will corrode easily and rapidly. It is said that the aluminum coating with a Krylon aerosol can quickly coats the inside protectively and dresses up the appearance.

Appointment of **Process Instruments & Equipment Co.,** as Platecoil distributor in the Charleston, W. Va., area has been announced by the **Platecoil Division** of **Tranter Manufacturing, inc.,** Lansing, Mich.

Process, located at 1029 Virginia St., East, Charleston, W. Va., is owned and operated by **Richard Moses.** A branch, under the managership of **Ernest C. Dawson,** is maintained at 110 Knox St., Marietta, Ohio.

*Richard Moses*

★ ★ ★

The **Thermo-Panel Division of Dean Products, Inc.,** Brooklyn, N. Y., has announced the appointment of five new representatives as follows:

**Cameron Engineering Co.,** 420 Market St., San Francisco 11, Calif.—northern California and Washoe County, Nevada.

**Allan Edwards, Inc.,** Box 7218, 2445 S. Jackson St., Tulsa, Okla. — Oklahoma, Arkansas, and northern Texas.

**Thermal Specialties Co.,** 11 N. 14th St., Box 1142, Harrisburg, Pa.—central Pennsylvania.

**Merlo Steam Equipment,** 1506 E. State Fair, Detroit 3, Michigan—eastern Michigan.

**J. F. Munn Co.,** 104 Market St., Pittsburgh 22, Pa. — parts of Maryland, Pennsylvania, and West Va.

★ ★ ★

**The Meyercord Company** has announced that it is offering sub-licensing rights to companies who pioneer the use of the Chem-Dry process in certain printing and coating industries. In the Chem-Dry method an almost instantaneous hardening of printed and coated films is obtained by a chemical reaction between the vehicle of the coating and sulfur dichlo-

ride vapor. For some applications, specific problems must be worked out to obtain full advantage from the method. In return for the development investment, the licensee would have control of the process in his industry with rights to use it in his own business and license others under the basic process patents and know-how. Complete information can be obtained from H. L. Barnebey, Chem-Dry Licensing Agent, 835 N. Cassady Ave., Columbus 19, Ohio.

## NEW POSITIONS

**A. James Fisher** has been appointed general sales manager of **Metal & Thermit Corporation,** Rahway, N. J., it has been announced by H. D. McLeese, vice-president. In his new post, Mr. Fisher will supervise sales of all Metal & Thermit products.

**Donald W. Oakley** has been transferred from assistant production manager to technical advisor to the president. In this post, he succeeds A. James Fisher.

The appointment was made in accordance with M & T company policy in executive training which calls for occasional rotation of position to broaden the ex-

*A. James Fisher*

*Harry W. Buchanan, III*

*Donald W. Oakley*

*Donald R. Meserve*

*Edwin M. Tinnon*

*Henry Mahlstedt*

*George Betz*

*H. Alfred Rack*

*Bernhard W. Weber*

perience of middle management men.

Mr. Oakley started with M & T in 1947 as superintendent of semi-works.

In line with the company's current program of expansion and product diversification, A. J. Fisher, M & T general sales manager, has announced a number of new sales executive appointments.

**Harry W. Buchanan, III,** has been named sales manager of chemicals, metals and plating products.

**Henry Mahlstedt** has been appointed product manager for plating products while **George Betz** has moved up to product manager for chemicals and metals.

**Donald R. Meserve** will serve as product manager for coatings, and **Edwin M. Tinnon** has been placed in charge of distributor relations. In this newly created position, Mr. Tinnon will report to Harry Buchanan.

**Robert T. Brown** continues as sales manager of M & T's welding products.

**Bernhard W. Weber** has been named manager of manufacturing of **M & T.** He succeeds Walton S. Smith who recently retired as vice-president in charge of manufacturing. **H. Alfred Rack,** formerly manager of engineering, will take over Mr. Weber's former post as production manager.

Metal & Thermit is a producer of tin chemicals and certain metals widely used as alloying materials. It is a supplier of welding materials and equipment, and of electroplating supplies and ceramic opacifiers.

★ ★ ★

Two appointments have been announced by the **Circo Equipment Company,** Rahway, N. J., manufacturer of metal parts washers, dryers and degreasing equipment.

**Stanford J. Bartlett,** now manager, Washer Division, will supervise sales, design and manufacturing of metal parts washers and dryers.

**Walter J. Reinecker,** now chief engineer, Sonic Division, will proceed with further development work in the field of ultrasonics, a continuing major interest with Circo.

*Walter J. Reinecker*

*Stanford J. Bartlett*

★ ★ ★

**John R. Jones** has been appointed sales manager of the **Pioneer Rubber Company,** Willard, Ohio, according to an announcement by J. H. Gibson, president of the company.

Mr. Jones was formerly with B. F. Goodrich Co., Akron, Ohio, where he had 27 years of service.

*Gordon L. Schuster*

*John R. Jones*

**Gordon L. Schuster** has been elected president and general manager of **Despatch Oven Company,** Minneapolis, Minn. Mr. Schuster has been associated with the company since 1940.

The youngest man the company has ever elected to its top position, Mr. Schuster takes over as president at 37 years of age.

According to Mr. Schuster, future plans for the company include new emphasis on engineering facilities and services for the many industries they serve. The Despatch Oven Company has been designing, engineering, manufacturing and installing heat processing equipment for the metal manufacturing industry, chemical and food processing industry since 1902.

★ ★ ★

**Wagner Brothers, Inc.,** Detroit manufacturer of automatic plating machinery, equipment and chemicals, has announced the appointment of **Kenneth Edstrom** as district manager of the new Cincinnati branch, covering Southern Ohio, Kentucky, Tennessee, Virginia and West Virginia. According to Joseph R. Wagner, president, the direct sales office manned by technical men is designed to improve service to customers. The Cincinnati office is at 2904 Woodburn Avenue.

*Kenneth Edstrom*

*John D. Kuppenheimer*

**Industrial Systems Company,** representative of **Industrial Washing Machine Corporation,** Matawan, N. J., has announced the appointment of **John D. Kuppenheimer** as eastern sales manager and export sales manager. In these capacities, Mr. Kuppenheimer, located at 55 Millbrook St., Worcester, Mass., will have charge of the sales of Industrial System's line of metal cleaning equipment in New England, eastern New York State, and abroad.

★ ★ ★

**Norman E. Bartholomew,** formerly sales supervisor in Detroit for **Kelite Corporation,** Berkeley Heights, N. J., manufacturer of industrial chemical and steam cleaning equipment, has been promoted to district sales manager of the Detroit district.

Mr. Bartholomew has been associated with Kelite since 1946.

*N. E. Bartholomew*

*Dr. Samuel Spring*

**Dr. Samuel Spring** has been appointed laboratory director of Kelite.

Dr. Spring has written many articles on the subject of metal cleaning, detergency, phosphatizing and metal-drawing lubrication. He is chairman of a section of A.S.T.M. Committee B-8 which covers cleaning prior to electroplating.

★ ★ ★

The **John B. Moore Corporation** of Nutley, N. J., has recently appointed **Irving Q. Sarlin** president.

John B. Moore, founder of the company, will become technical director and devote his full time to research and new products.

Appointment of **Howard Hill** as sales and service representative of the Ionic Spray Division of **Scientific Electric,** Garfield, New Jersey, has been announced by John Sedlacsik, Jr., general manager.

In his new position, Mr. Hill will be concerned with demonstrations, sales and service of "Ionic" Electrostatic Spray Equipment.

★ ★ ★

It has been announced that **Leon Cherksey** has become chairman of the Board, and **Gerald C. Romig** has succeeded Mr. Cherksey as president of the **American Chemical Paint Co.,** Ambler, Pa.

Mr. Cherksey is the first officer in the history of the company to serve in this capacity. He and Mr. Romig are both on the Board of Directors.

★ ★ ★

**William V. Brenton** has been elected a vice president of **Pemco Corporation,** Baltimore, Md., according to an announcement by Richard H. Turk, chairman and president.

Mr. Brenton's headquarters will be in Baltimore. He will direct field sales of the porcelain enamel and ceramic divisions.

★ ★ ★

The appointments of **Albert P. Gagnebin** as manager and **Harold Larsen** as assistant manager of the Nickel Sales Department of the **International Nickel Company, Inc.,** have been announced by Henry S. Wingate, president, and Lars R. Larsen, vice president and general sales manager.

Mr. Gagnebin succeeds **Ransom Cooper, Jr.,** who is retiring after 33 years' service.

★ ★ ★

The **Dow Chemical Company,** Midland, Mich., has announced the appointment of **Dr. Fred W. McLafferty** as director of the newly-formed Eastern Research Laboratory at Framingham, Mass.

**Kelite Corporation,** Berkeley Heights, N. J., has announced the appointments of **Charles N. Chalfant** as district sales manager in the New York district, and **Robert J. Racine** as western regional sales manager.

*Robert J. Racine*

*Charles N. Chalfant*

★ ★ ★

Joseph R. Wagner, president of **Wagner Brothers, Inc.,** Detroit manufacturer of plating automation, chemicals and supplies, has announced the election of **Jack Keyes** as vice president in charge of western Michigan sales. Simultaneously, it has been announced that a factory branch has been established in Grand Rapids to service the area, including laboratory, warehousing and technical service facilities. **Richard Watson** has been appointed to manage the office, cooperating with Mr. Keyes. The Grand Rapids address is 2417 Eastern Ave., S.E.

*Jack Keyes*

*Richard Watson*

The **Udylite Corporation,** Detroit, Michigan, has announced the appointment of two service engineers.

**A. E. Webber** has been promoted to the position of sales engineer in the Pittsburgh area, working under the supervision of the Cleveland office.

**Russell E. Reynolds** has moved from Pittsburgh to the Detroit area where he will serve as sales engineer in the northwest section of Michigan.

*A. E. Webber*

*Russell E. Reynolds*

★ ★ ★

Appointment of **Ernest T. Handley** as executive vice president of the **Firestone Plastics Company,** Pottstown, Pa., has been announced by Roger S. Firestone, president. Mr. Handley has been vice president in charge of production and continues as general manager of the Pottstown plant.

Mr. Firestone has also disclosed the appointment of **Frank J. Groten** as vice president in charge of Chemical Sales, and **Kenneth L. Edgar** as vice president in charge of Velon Sales. Mr. Groten and Mr. Edgar have been sales managers for these product divisions.

The Firestone Plastics Company is one of the nation's leading producers of vinyl resins under the trade name "Exon," as well as of other chemicals; and of plastic film and filament under the trade name "Velon."

★ ★ ★

**William F. Burchfield** has been appointed supervisor and **Kenneth M. Spicer,** assistant supervisor of Technical Service of the **International Nickel Company,** Development and Research Division, F. L. LaQue, vice-president and manager of the division, has announced.

★ ★ ★

**Herman Behme** has been appointed to the position of eastern manager of the Market Development Department of **Stauffer Chemical Co.,** New York, New York.

Mr. Behme is a graduate of Rutgers University (1948). He joined Stauffer in 1951 as assistant to the eastern director of Research; he has been in Market Development since 1952.

★ ★ ★

**Harry P. Barrand** has been elected to the board of directors of **Hanson-Van Winkle-Munning Co.,** Matawan, New Jersey.

Mr. Barrand is president and director of the Climax Fire Brick Co., Climax, Pa. He also has his own business at 57 William St., in New York City, where he acts as a financial agent and consultant on problems of financial reorganization.

*Harry P. Barrand*

*W. P. Cornwell*

**W. P. Cornwell** has become sales manager of **Wyandotte Chemicals'** Dallas district. The announcement was made by Ford Ballantyne, Jr., a vice president and general manager of The J. B. Ford Division, Wyandotte Chemicals.

M. B. Roosa, vice president in charge of sales, **Parker Rust Proof Company,** Detroit, Mich., has announced the addition of **D. H. Hamner** to the staff of the Automotive Division, Technical Service Department.

Mr. Hamner comes to Parker with over twenty years' experience with the General Motors Corporation in the field of metal finishing and painting.

*D. H. Hamner*

*Joseph A. DeBoskey*

The consumer division of the **McAleer Manufacturing Corporation,** Detroit manufacturer of car and furniture polishes and waxes, has been expanded and its former sales manager, **Joseph A. DeBoskey** has been elected president of the enlarged marketing organization.

The firm has been producing chemicals, polishing and finishing materials since 1923. The name has been changed to **McAleer Products Division, Inc.**

★ ★ ★

**Richard H. Kline** has been added to the **Pennsylvania Salt Manufacturing Company,** Metal Processing Department sales staff in Detroit, sales manager John M. Davison has announced.

Following technical training at the company's Whitemarsh Research Laboratories, Mr. Kline will work under the direction of district sales manager Charles R. Sorber, handling Pennsalt products for the metal producing and metal working industries in the Detroit area.

The appointment of **James R. Addonizio,** as a technical sales representative, in the New York office of the Synthetics Department, **Hercules Powder Company,** has been announced by James W. L. Monkman, director of sales.

Mr. Addonizio had extensive production, research, and sales experience in the chemical industry before joining Hercules in January.

★ ★ ★

**Kenneth A. Proctor** has been appointed industrial sales manager, **Better Finishes and Coatings, Inc.,** with headquarters at the company plant in Newark, N. J., according to an announcement by Myron F. Bryant, president.

Mr. Proctor will be in charge of industrial sales of BFC plastic coatings, strip coatings and industrial finishes. For several years prior to joining Better Finishes, Mr. Proctor headed his own firm of manufacturers representatives in Philadelphia, and was previously associated with the Steelcote Manufacturing Company as sales manager of Maintenance Paints.

*Kenneth A. Proctor*

*Frank J. Vuranch*

**Frank J. Vuranch** has been appointed chief service engineer for **Young Brothers Company,** Cleveland, Ohio, manufacturer of industrial ovens.

Mr. Vuranch has been a service engineer with the company since 1951.

The appointment of **Harold E. Collins** as vice president in charge of sales has been announced by **Metals Disintegrating Company, Inc.,** Elizabeth, New Jersey, manufacturer of metal powders, metal pigments and metal abrasives.

*Harold E. Collins*

*A. S. Burnett*

**Davies Supply and Mfg. Co.,** St. Louis, Mo., has announced the election of new officers.

**A. S. Burnett** has been elected to the office of vice president, replacing R. H. Bobilin. Mr. Burnett joined Davies in 1947 as sales engineer. He will continue to serve in this capacity and also devote a part of his time to the design of new racks and tanks.

**E. F. Conroy, Jr.,** has been elected executive vice president, a newly created office. Mr. Conroy formerly held the office of vice president.

Those re-elected were **L. A. Davies,** president and treasurer, and **C. E. Miller,** secretary and assistant treas.

★ ★ ★

The appointment of **Edmund M. Wise** to be assistant to the vice-president-manager of the Development and Research Division of **The International Nickel Company, Inc.,** has been announced by F. L. LaQue, vice-president and manager of the division.

Mr. Wise will devote special attention to platinum metals and applied physics while bringing his extensive knowledge and experience to bear over the broad range of materials and processes with which the Development and Research Division is concerned.

**Dr. George T. Paul** has joined **The International Nickel Company, Inc.,** as a member of the Development and Research Division's Corrosion Engineering Section in New York, according to an announcement by O. B. J. Fraser, assistant manager of the division. One of Dr. Paul's first undertakings will be the preparation of a book on the corrosion resistance of stainless steels.

Designed to meet an increasing need in industry, this volume is planned to be the most comprehensive yet written on the subject.

★ ★ ★

It has been announced by the board of directors of the **Automotive Rubber Company, Inc.,** Detroit, Mich., that **Robert W. Jaeger** has been appointed general manager of ARco Rubber Processors, Houston, Texas.

As head of ARco Rubber Processors, Mr. Jaeger follows in the footsteps of **Richard D. Bailey** who has been moved up to general lining superintendent of all ARco Divisions working out of Detroit.

ARco Rubber Processors is a division of Automotive Rubber Company, Inc., with general offices at 12550 Beech Road at PMRR, Detroit 39, Michigan. The Houston, Texas facilities are devoted to the application of ARco corrosion resistant coatings to

*Richard D. Bailey*

*Robert W. Jaeger*

operating, processing, transportation, and storage equipment for a variety of industrial fields.

## MEETINGS

Plans for the **Federation of Paint and Varnish Production Clubs' 1956 Paint Industries' Show** have been completed and all space has been reserved, according to William L. Foy, Show Committee Chairman.

The Show will open on Monday, October 22nd, at 1 p.m. in the Netherland-Hilton Hotel in Cincinnati and will run concurrently with the 34th Annual Meeting of the Federation. Both the Show and the Annual Meeting will close on October 24th.

Chairman Foy said that he expected the Show to be the best ever presented, not only in number of exhibitors but also in educational value to those attending the Annual Meeting.

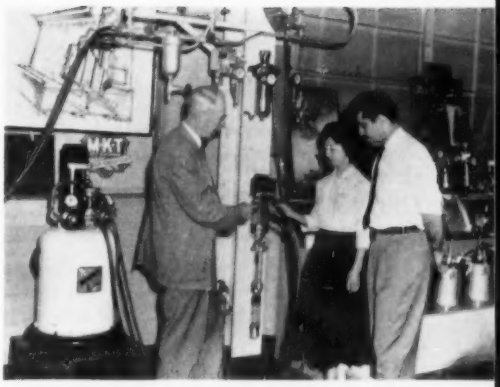
## SOCIETIES

Scheduled with the A.E.S. Convention in Washington, D. C., the M.F.S.A. Golf Tournament was held on the Manor Country Club course at Norbeck, Maryland. **Joseph J. Duffy, Jr.,** Pennsylvania Salt Mfg. Co., served as tournament director. The entry list topped all previous tourneys.

Using the Calloway Handicap system, five contestants tied for low net honors with 72's: **Phillip Borell,** Allied Research Products, Inc.; **Miss Jean Conner,** National Bureau of Standards; **Joseph Eisele,** Enthone, Inc.; **William Innes,** MacDermid, Inc.; and **Ed Mahar,** Glidden Company. Displaying a well balanced game, **Joseph Wagner** of Wagner Brothers carded a 78 to lead the field in low gross scores. Each received a handsome prize.

## TRAINING COURSES

The **Binks Manufacturing Company Spray Painting School,** recently attracted a Japanese and a Persian to learn the fine points of spray finishing from William Beacham.



*William Beacham, Binks Manufacturing Co. Spray Painting School, explains Model 18 spray gun to Japanese and Persian students.*

Since its formal organization in 1949 more than 2,600 students have attended the tuition-free school in Binks' Chicago plant.

The 5-day course outline covers the theory, principles, and problems involved in spray finish applications, a discussion of the finishes themselves, and a comprehensive investigation of the proper equipment for each particular spray finishing job.

Conducted every month of the year except July and August, the number of students per class is limited to facilitate maximum individual attention to particular student problems, according to Mr. Beacham. There are four classes scheduled for the 1956 fall term: Sept. 10-14, Oct. 1-5, Nov. 12-16, and Dec. 3-7.

For information or reservations, write Binks Mfg. Co., 3122 W. Carroll Ave., Chicago 12, Ill.

★ ★ ★

An educational assistance program for full time employees has been announced by **Norton Company** of Worcester, Mass. The program is designed to recognize the interest of employees in taking additional courses of evening study which will provide useful background for their present jobs or prepare them for future progress.

Under the plan, which becomes effective September 1, Norton Company will refund 50 per cent of the tuition, registration and laboratory fees. A maximum of $200 may be paid to any employee during a twelve month period. The student must complete his course with a passing grade to qualify for the refund.

★ ★ ★

Announcement of the fall schedule of instruction for the DeVilbiss Company school of spray finishing has been made by the **DeVilbiss Company,** Toledo manufacturer of spray finishing equipment.

Now completing its third decade of operation, the school has been expanded in size and facilities and an additional instructor, Anthony Stranges, has been appointed to the staff by Irvin B. Thomas, chief instructor.

Classes of limited size are enrolled at no cost for tuition. Applications may be made immediately for all courses of the fall program by writing the DeVilbiss Company, 300 Phillips Ave., Toledo 1, Ohio.

Starting dates for forthcoming courses of instruction in industrial spray finishing are: July 16, August 13, September 10, October 8, November 5, and December 10.

## HONORS

**Robert M. Burns,** Summit, New Jersey, has been selected to receive the Edward Goodrich Acheson Gold Medal and Prize of The Electrochemical Society, Inc. Presentation of the medal and prize of $1,000 will be made at a dinner to be held on October 2, 1956, at which Dr. Burns will deliver the Acheson Medal Address, during the 110th meeting of the Society in Cleveland, Ohio, Sept. 30-Oct. 4, 1956.

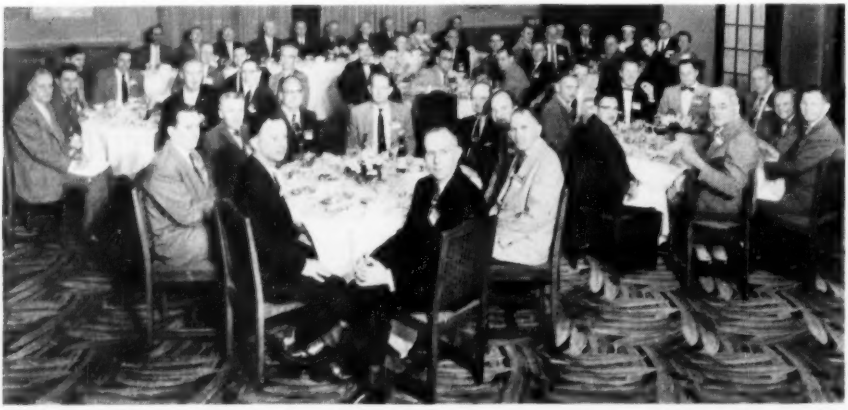
The Acheson Award is made once every two years for conspicuous "contribution to the advancement of the objects, purposes, or activities" of the Society.

Dr. Burns, formerly chemical director of Bell Telephone Laboratories, is now a scientific advisor to Stanford Research Institute and to the Sprague Electric Company.

★ ★ ★

The **Udylite Corporation,** Detroit 11, Michigan, recently held its annual party for the Udylite Service Club at the Detroit Yacht Club. The Udylite Service Club has a membership of 57 men and women employed by Udylite for 15 years or more.

At this party, gold watches, com-



*Gold watches and service pins were presented at the Udylite Service Club annual party*

memorating 20 years of service, were given to Dr. R. B. Saltonstall, technical director, H. J. Ward, Michigan district sales manager, W. Jackson, head, Plating Barrel Engineering Dept., and V. E. Zobel, director of purchases. In addition, there were presented seven service pins, each in recognition of 15 years of service.

★ ★ ★

Ten high school senior boys representing seven states have been selected as winners of **Pittsburgh Plate Glass Foundation Merit Scholarships**, according to a recent announcement by the **National Merit Scholarship Corporation** of Evanston, Illinois.

The Pittsburgh Plate Glass Foundation Merit Scholarships have been designed for seniors concentrating in liberal arts, chemistry, or engineering.

## NECROLOGY

The worst airline disaster in the history of commercial aviation, the mid-air collision between a TWA Super Constellation and a UAL DC-7 which claimed 128 lives on June 30, brought to a tragic end the career of **L. D. Cook**, sales engineer with the **Bart Manufacturing Corporation**, Belleville, N. J. On business in the Los Angeles area, Mr. Cook was aboard the United Airlines' DC-7 enroute to his firm's Detroit office to wind up his affairs, prior to going on vacation.

## MEETINGS of INTEREST to FINISHERS

**Sept. 5-8. 59th Annual Convention of The International Association of Electrotypers and Stereotypers, Inc.,** Lake Louise, Alberta, Canada.

**Sept. 16-21. Annual Meeting, American Chemical Society,** Convention Hall, Atlantic City, N. J.

**Sept. 16-22. Pacific Coast Meeting, American Society for Testing Materials,** Statler Hotel, Los Angeles, Calif.

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**Sept. 20-21. Semiannual Meeting, American Hot Dip Galvanizers' Association,** Greenbrier Hotel, White Sulphur Springs, W. Va.

**Sept. 25-28. 1956 Iron and Steel Exposition and Annual Convention of the Association of Iron and Steel Engineers,** Cleveland Public Auditorium, Cleveland.

**Oct. 8-12. National Metal Congress & Exposition, American Society For Metals,** Public Auditorium, Cleveland, Ohio.

**Oct. 21-24. 34th Annual Meeting and 21st Paint Industries Show, Federation of Paint and Varnish Production Clubs,** Netherland-Hilton Hotel, Cincinnati, Ohio.

**Oct. 28-Nov. 1. Fall Meeting, Electrochemical Society, Inc.,** Hotel Statler, Cleveland, Ohio.

**Nov. 7-9. 18th Annual Shop Practice Forum, Porcelain Enamel Institute, Inc.,** Urbana-Lincoln Hotel and University of Illinois, Urbana, Ill.

For Free Literature Circle Numbers on Card Inside Front Cover

# PRODUCT LITERATURE

**57. Paint Stripping Service**
Details of company's facilities for stripping paint on a job basis. Redi-Strip Co., 10811 S. Garfield Ave., South Gate, Calif.

**58. Metal Cleaners**
Information on improved cleaners for preparing metal for painting and removing rust. Detrex Chemical Industries, Inc., Box 501, Detroit 32, Mich.

**59. Longer Wearing Buffing Fixtures**
Description of facilities for coating buffing fixtures with tungsten carbide to give better abrasion resistance, make them last longer. Fusion Metal Coating Co., 25493 W. 8 Mile Rd., Detroit 19, Mich.

**60. Printed Circuitry**
Literature contains detailed information on techniques of printing electrical circuits via the resist method and also direct printing of silver circuits. Also available is literature with regard to silk screen process printing in general. Cincinnati Screen Process Supplies, Inc., 43 Walnut St., Cincinnati 2, Ohio.

**61. Buffing Compound Specifications**
Specifications for a variety of greaseless buffing compounds are given in a data sheet which includes information on abrasive sizes, type finish produced by using each, and applications. Atlantic Compound Co., 1860 Baldwin St., Waterbury, Conn.

**62. Use of Filters**
Reprint of article entitled "The Use of Filters in Electroplating." Alsop Engineering Corp., 1107 Keen St., Milldale, Connecticut.

**63. Preparing Aluminum**
Technical data on the Alodizing process for preparing aluminum for painting. American Chemical Paint Co., Ambler 14, Pennsylvania.

**64. Improved Electroplating**
Booklet gives valuable hints on improvement of deposits and tells of the part that OFHC Copper Anodes can play in better electroplated finishes. The American Metal Co., Ltd., 61 Broadway, New York 6, N. Y.

**65. Chromium Plating Additive**
Informative fact-file folder concisely reviews a recently developed chromium plating additive "CPA 1800," formulated for both decorative and hard chrome applications. Diamond Alkali Co., Chromium Chemicals Div., 300 Union Commerce Bldg., Cleveland 14, Ohio.

**66. Burnisher and Dryer**
Portable Mercil Burnishing Barrel and Mercil No. 1 Dryer are described in Bulletin MBD-100. Design of this new burnisher plus its portability make it particularly applicable to jewelry polishing and deburring and cutting down of other materials. Compactness and sound engineering with design simplicity are features of the new Mercil No. 1 Dryer. Hanson-Van Winkle-Munning Co., Church St., Matawan, N. J.

**67. Felt Products**
Catalog of felt wheels, bobs, sheets, ink rollers, washers and other felt products. Bacon Felt Co., 447 W. Water St., Taunton, Mass.

**68. Electropolishing Concentrates**
Folder tells advantages of using Electro-Glo Electropolishing concentrates for finishing copper and copper alloys, martensitic and austensitic stainless steels, low and medium carbon steels, high carbon and tool steels and other less common metals and alloys. Electro-Glo Co., 1430 S. Talman Ave., Chicago 8, Ill.

**69. Rectifier "Guide"**
A revised edition of the company's "guide" to power conversion rectifiers. Illustrated with photographs of rectifiers for every d.c. power need, with information to aid in the selection of rectification equipment for specific applications. Bart-Messing Corp., 229 Main St., Belleville 9, N. J.

**70. Masking Tape**
Folder describes and illustrates a variety of masking tapes used in finishing operations such as anodizing, painting, high temperature baking. Behr-Manning, Div. of Norton Co., Dept. PF-8, Troy, N. Y.

**71. Air Control Unit**
Data sheet tells how new 100-c.f.m. regulator-extractor unit increases efficiency and supplies cleaner compressed air. Binks Mfg. Co., 3118-40 Carroll Ave., Chicago 12, Ill.

**72. Viscosity Determination**
Electric instrument determines viscosity of solutions quickly and accurately, gives results directly, without computation. Catalog gives details, shows several models. Brookfield Engineering Laboratories, Inc., Stoughton 11, Mass.

**73. Electroplating Data Chart**
Technic Chart provides comparative data on gold, rhodium, palladium, platinum, silver and nickel. Technic, Inc., 39 Snow St., Providence 1, Rhode Island.

**74. Plating and Finishing**
Technical bulletins on heat treating, plating, finishing and allied compounds. The Swift Industrial Chemical Company, Canton, Conn.

**75. Ultrasonic Degreasers**
Bulletin UC-1 gives information on Circo ultrasonic equipment. Circo Equipment Co., 51 Terminal Ave., Clark (Rahway), N. J.

**76. Spray Booth Maintenance**
Crescent D-Zolvzit N.F. added to water curtain aids in maintenance of water wash spray booths, eliminates excessive foam. Crescent Chemical Corp., 450 Market St., Perth Amboy, N. J.

**77. Metal Cleaner**
Information about Wyandotte BN, a free-rinsing industrial detergent with silicate-synthetic detergent base formulation. Wyandotte Chemicals, J. B. Ford Div., Wyandotte, Mich.

**78. Abrasive Belt Machine**
Data sheet tells advantages of Curtis DBA-1F Abrasive Belt Machine. Curtis Machine Corp., Sub. of The Carborundum Co., 1300 E. Second St., Jamestown, N. Y.

**79. Immersion Heater**
Descriptive literature on quartz and stainless steel immersion heaters with built-in temperature control. N. J. Thermex Co., Inc., 537 Bergen St., Harrison, New Jersey.

**80. Vacuum Metalizing Apparatus**
Vacuum metalizing produces a wide range of metallic and colored finishes quickly and easily. Technical data and information on the CVC line shows how it's done. Consolidated Vacuum, Rochester 3, N. Y.

**81. Automatic Plating Machines**
Information on a complete line of rack type and barrel type automatic plating and processing machines. Frederic B. Stevens, Inc., Detroit 16, Mich.

**82. Barrel Finishing Equipment**
Information on the Mity-Mite line of barrel finishing equipment. Speed-D-Burr Corp., 3613-C San Fernando Rd., Glendale 4, Calif.

**83. Prevent Scale**
Illustrated brochure on the Aluminux process of aluminum etching, which is said to prevent scale formation in the tanks. Metal Industries Dept., The Diversey Corp., 1820 Roscoe St., Chicago 13, Illinois.

**84. Silicone Reference Guide**
Reference Guide to Dow Corning silicone products. New edition describes almost 150 of the most generally used silicone products, 18 of which were recently introduced. Dow Corning Corp., Midland, Michigan.

**85. Build Your Own Ovens**
Literature gives information on constructing ovens from dri-Quik interlocking infra-red oven sections. Dry Clime Lamp Corp., Greensburg, Ind.

**86. Temperature Control**
Control of plating bath temperature is important in producing specification deposits with minimum rejects. Sarco Indicating Temperature Controllers hold plating solutions to plus or minus ½ deg. F. Details in Handbook No. 6, Sarco Co., Inc., Empire State Bldg., New York 1, New York.

**87. Metal Strippers**
"Enstrips" booklet describes chemical products for removing one metal from another metal without attacking the base metal. Available for nickel, copper, chromium, zinc, cadmium and silver. Enthone, Inc., 442 Elm St., New Haven 11, Connecticut.

**88. Barrel Finishing Compounds**
Folder covers specifications and application information on fourteen different Esbec Color-coded compounds and abrasives. Esbec Barrel Finishing Corp., 19 Beech St., Byram, Conn.

**89. Temporary Protective Coating**
Catalog describes Laqua, a material that displaces water from a surface and at the same time deposits a thin protective film. It eliminates the drying operation after plating. Fidelity Chemical Products Corp., 472 Frelinghuysen Ave., Newark, N. J.

**90. Spray Masks**
Information on electroformed masking devices used to protect certain areas of a product while leaving other areas free to be painted by spraying. Wm. M. Fiore, Inc., 269-41st St., Brooklyn 32, N .Y.

**91. Unplasticized Polyvinyl Chloride**
Chemical Sales Div., Firestone Plastics Co., Pottstown, Pa., has available Sales Service Bulletin No. 3B which lists the mechanical, thermal, electrical and chemical resistance properties of unplasticized Exon 402-A. Uses of unplasticized polyvinyl chloride and informative technical data are presented in this folder.

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**92. Roller Coating**
Booklet includes a handbook answering hundreds of questions on roller coating methods. Gasway Corp., 6463 N. Ravenswood Ave., Chicago 26, Ill.

**93. Soak Cleaner**
Technical bulletin shows how Cowles NS Soak Cleaner does a better job of dispersing soil deposits and drawing, stamping and buffing compounds. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

**94. Immersion Heater**
Advantages of using Glo-Quartz Type "U" Translucent Fused Quartz Immersion Heaters in process heating application, Glo-Quartz Electric Heater Co., Inc., Willoughby, Ohio.

**95. Drying Small Parts**
Folder tells how Model 20 Kreider Centrifugal Dryer can be used to dry large quantities of small parts rapidly. Dept. F-66, New Holland Machine Co., New Holland, Pa.

**96. Centrifugal Pumps**
Bulletin gives head, g.p.m. and efficiency graphs for Industrial Centrifugal Pumps lined to suit individual applications. Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill.

**97. Machines for Production**
Reprint of article entitled "Why You Must Buy More Machines." Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

**98. Portable Sandblast Gun**
Bulletin illustrates and describes the Lindberg Portable Sandblast Gun, a handy tool to have in any metal finishing shop. Lindberg Products Co., P.O. Box 121P, Kelseyville, Calif.

**99. Tumbling Barrels**
Catalog describes and illustrates the company's latest models of tumbling barrels. The Henderson Bros. Co., 134 S. Leonard St., Waterbury, Conn.

**100. Buffers and Polishers**
Catalog No. 72FA describes and illustrates V-belt and direct drive buffers and polishers. Hisey-Wolf Machine Co., Cincinnati 8, Ohio.

**101. Thickness Tester**
Electronic thickness tester gives direct readings of plating thickness. Determines thickness of cadmium, chromium, silver, tin, nickel, lead, brass, copper and other plated coatings. Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Ill.

**102. Paint Heaters**
Operation of DeVilbiss Paint Heaters described in a folder that explains advantages of this method of paint application. The DeVilbiss Co., Toledo 1, Ohio.

**103. Sprayable Solvent Cleaner**
Spray White is a safety solvent that can be sprayed onto objects to deflocculate, emulsify and dissolve greases and soils. Data sheet gives complete story. Kelite Corp., Berkeley Heights, N. J.

**104. Potassium Cyanide Solution**
Bulletin C-6-227 describes Koppers Potassium Cyanide Solution for use in electroplating. Lists applications of the product to the plating of automotive parts, appliances, silverware, surgical instruments, hardware, tools and ball bearings, and certain custom plating operations. Chemical Div., Koppers Company, Inc., 1301 Koppers Bldg., Pittsburgh 19, Pa.

**105. Electroplating Aluminum**
Data Sheet No. 13 describes the Alumetex Process for electroplating on aluminum. MacDermid, Inc., Waterbury 20, Connecticut.

**106. Alloy Plating Processes**
Folder describes three new alloy plating processes, tin-nickel, tin-zinc and bronze (copper-tin). Metal & Thermit Corp., Rahway, N. J.

**107. Spraying Metals and Ceramics**
The Metco Type P ThermoSpray Gun incorporates design principles which allow thermal spraying of materials such as alumina, zirconia, hard facing materials, stainless steels and bronzes without the use of compressed air. Metallizing Engineering Co., Inc., 1101 Prospect Ave., Westbury, N. Y.

**108. Testing Instruments**
Measurement Equipment Catalog GEC-1016. Complete production information on devices ranging from simple thickness gages to the mass spectrometer leak detector. General Electric Co., Schenectady 5, N. Y.

**109. Masking Tape**
Folder describes a thin, flexible masking tape that conforms readily to curved surfaces yet strips off easily after painting. Mystik Adhesive Products, 2635 N. Kildare Ave., Chicago 39, Ill.

**110. Luminous Paints**
Samples of the effects possible with Stroblite U.V. Fluorescent paints are contained in a folder which list a variety of products for producing luminescent effects. Gardner Laboratory, Inc., Bethesda 14, Md.

**111. How To Remove Paint**
The removal of stubborn paint and phosphate deposits by the use of Oakite Rustripper is described. Folder shows how alkaline rust, paint, and oxide scale remover can eliminate separate rinsing, pickling, and neutralizing operations on rejects, products that may have rusted during production, and used products that are to be reconditioned. Oakite Products, Inc., 20 Rector St., New York 6, New York.

**112. Plating Control Instruments**
Bulletin 1014 gives detailed technical data on the Pace Ampere Hour Recorder and the Pace Autoramic Brightener Feeder and tells how these instruments can be used to control quality and determine plating costs. F. D. Pace Co., 69-73 Scribner Ave., N.W., Grand Rapids, Michigan.

**113. Electrocleaner**
Information on Pennsalt Cleaner K-8, formulated for use as an electrocleaner. Use of this material is said to remove heat-treat soils, mill oils and drawing compounds. Metal Processing Dept. 235, Pennsylvania Salt Mfg. Co., Three Penn Center Plaza, Philadelphia 2, Pa.

**114. Power Spray Washers**
Information on metal washing machines designed and built to meet specifications of space, output, and performance. Peters-Dalton, Inc., 17908 Ryan Rd., Detroit 12, Michigan.

**115. Degreaser**
Complete technical data on the Phillips 100 CS Vapor Degreaser, which gives a cool and hot rinse along with vapor degreasing and operates as a solvent recovery still. Adaptable to a continuous or intermittent cycle. Phillips Manufacturing Co., 3457 W. Touhy Ave., Chicago 45, Illinois.

**116. Plating Processes**
Bulletin includes description of several Promat plating products, including Probrite White Alloy, which is recommended as an alternate for nickel plating. Promat Div., Poor & Co., 851 S. Market St., Waukegan, Ill.

**117. Tumbling Barrel**
Information on the Automatic Media Return Tumbling Barrel, which performs all operations, including cleaning, deburring, descaling and media separating all within the drum, without manual handling, on an automatic time cycle. Ransohoff, Inc., 610 N. Fifth St., Hamilton, Ohio.

**118. Tank Linings**
"Perma-Line Linings for Industry," a booklet describing rubber-lined tanks, heat exchangers, ventilation and exhaust systems, anode baskets and other corrosion-resistant equipment. Perma-Line Rubber Products Corp., 1753 N. Winnebago Ave., Chicago 47, Ill.

**119. Conveyors**
A 60-page catalog shows typical installations of Richards-Wilcox Zig-Zag conveyors in finishing operations. Helpful engineering data relative to the proper installation, use, and maintenance of conveyors is included. Richards-Wilcox Mfg. Co., 276 W. Third St., Aurora, Ill.

**120. Precision Barrel Finishing**
Catalog tells how to barrel finish parts where close tolerances must be held. Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

**121. Airless Spray Painting**
Full information on the apparatus needed for application of paint by the Airless Spray Process. Bede Products Corp., Jackson St., Dept. 1, Amherst, Ohio.

**122. Low-Voltage Power**
Bulletin D-102 tells why Chandeysson Motor Generators are an economical and dependable source of current for plating. Chandeysson Electric Co., 4082 Bingham Ave., St. Louis 16, Mo.

**123. Sanding Guide**
Pocket guide gives valuable information on proper sanders and pads for various applications. Sundstrand Machine Tool Co., Pneumatic Div., Rockford, Ill.

**124. Down Draft Spray Booths**
Bulletin 51C describes down draft spray booths, tells how they improve finishing. Despatch Oven Co., 619 S. E. 8th St., Minneapolis, Minn.

**125. Condensate Control**
Data sheet contains technical information relative to the Temp-A-Sure condensate Control, which is used to control tank temperatures — this device brings the work to operating temperature and then holds it there. The Swiss Colony, Engineering Div., Monroe, Wisc.

**126. Rectifiers**
Bulletin 5500 describes Ther plating rectifiers and includes data on remote controls, self-contained rectifiers, anodizing rectifiers, bench models and periodic reverse units. Ther Electric & Machine Wks., 13A S. Jefferson, Chicago 6, Ill.

**127. Bright Nickel**
Bulletin describes features of the Udylite 514 Bright Nickel Process. Udylite Corp., Detroit 11, Mich.

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## PRODUCT LITERATURE

**128. Thickness Tester**
Description of the Dermitron Non-Destructive Thickness Tester, which can be used to check thickness of silver, copper, nickel, chromium, cadmium, zinc, brass and tin on brass, steel, aluminum, copper and zinc. Also checks thickness of anodized coatings. Unit Process Assemblies, Inc., 75 E. 4th St., New York 3, N. Y.

**129. 101 Ways to Apply Electric Heat**
Illustrates and describes methods of electrically heating gases, air, liquids, machine parts and process equipment. Edwin L. Wiegand Co., 7522 Thomas Blvd., Pittsburgh 8, Pa.

**130. Acid-Resistant Apparel**
Specific resistance to various corrosive chemicals of fabrics used in work clothes. Photographs show many styles of chemical resistant apparel. Worklon, Inc., 253 W. 28th St., New York 1, N. Y.

**131. Centrifugal Dryer**
Specifications and operational details of Nobles centrifugal dryer, designed for drying small parts. Nobles Engineering and Manufacturing Co., 645 E. Seventh St., St. Paul 6, Minn.

**132. Silk Screening**
Information on silk screen preparation service and silk screen enamels. Dept. P6, The Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill.

**133. Blackening Salt**
Details on the use of Park 290 Blackening Salt to produce a black finish that is rust resistant and decorative. Park Chemical Co., 8074 Military Ave., Detroit 4, Mich.

# Opportunity Section

Space in this section is available for ***Classified Advertising.*** For rates and other information address: **PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio**


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Fast growing manufacturer of infra-red baking and drying units and ovens offers a splendid opportunity to several successful manufacturers' representatives and salesmen now selling allied lines of equipment directly to users. Several excellent territories in Michigan, southern Ohio, Minnesota, Wisconsin, Alabama, Georgia and Florida, now open with almost unlimited earning possibilities on a liberal commission plan. Write (do not phone) giving complete information on experience, lines now handled and territory covered. Information given will be treated confidentially. DRIQUIK Div. Dry Clime Lamp Corp., Greensburg, Indiana.

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**431 Main St. Cincinnati 2, Ohio**

### BARGAINS IN FINISHING EQUIPMENT

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Barrett Centrifugal Enameler for Filwhirl or Dipspin Methods.
Ransohoff and International Washers, turntable and conveyorized complete with X.P. Motors.
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# Opportunity Section

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Wanted: Salesmen with following in metal-finishing industry and with industrial plants to sell line of paint removers, strippers, and metal cleaning chemicals as sideline. Liberal commissions and protected territory. Give full details in first letter.

**W. M. Barr & Co.**

**BOX 10084** **MEMPHIS 6, TENN.**

## Exclusive Territories Available

for manufacturers' representatives to handle top grade line of vapor degreasers, finishing systems and solvents for nationally known manufacturer of industrial cleaning equipment. Contacts in metal manufacturing desirable. Write giving details and information concerning lines presently carried.

**METALWASH MACHINERY CORPORATION**
**901 NORTH AVENUE** **ELIZABETH 4, N. J.**

## Wyandotte

### HAS OPPORTUNITIES IN:

SALES: This major producer of metal cleaners and other chemical products for metal finishing has attractive openings for technical salesmen. Need metal finishing experience. Degree in Chemistry or Chemical Engineering preferred but not mandatory. Salary, commission and bonus, plus car and expenses. Fine opportunity for advancement in growing organization. Address Industrial Sales, J. B. Ford Division, Wyandotte Chemicals Corp., Wyandotte, Mich.

TECHNICAL SERVICE: Opportunities for chemists or chemical engineers with at least four years experience in electroplating and metal finishing. Headquarters, Detroit area. Reply to Technical Service Department, J. B. Ford Division, Wyandotte Chemicals Corp., Wyandotte, Mich.

RESEARCH: Responsible positions at Wyandotte, Mich., for development of detergents and other chemical products for metal finishing operations. These products used in the electrocleaning and general metal finishing fields and by the railway and aviation industries. Some experience preferable but not essential. Must have B.S. or M.S. in Chemistry or Chemical Engineering. Pleasant working conditions and modern facilities. Write Director of Application Research, Research and Engineering Division, Wyandotte Chemicals Corp., Wyandotte, Michigan.

Excellent hospitalization, insurance and retirement programs. All replies will be considered promptly and held in confidence.

**WYANDOTTE CHEMICALS CORPORATION**
**WYANDOTTE, MICHIGAN**

*The Finishing Touch* — **By J. A. Patterson**

***"Another seven! You lucky stiff, spin her again!!"***

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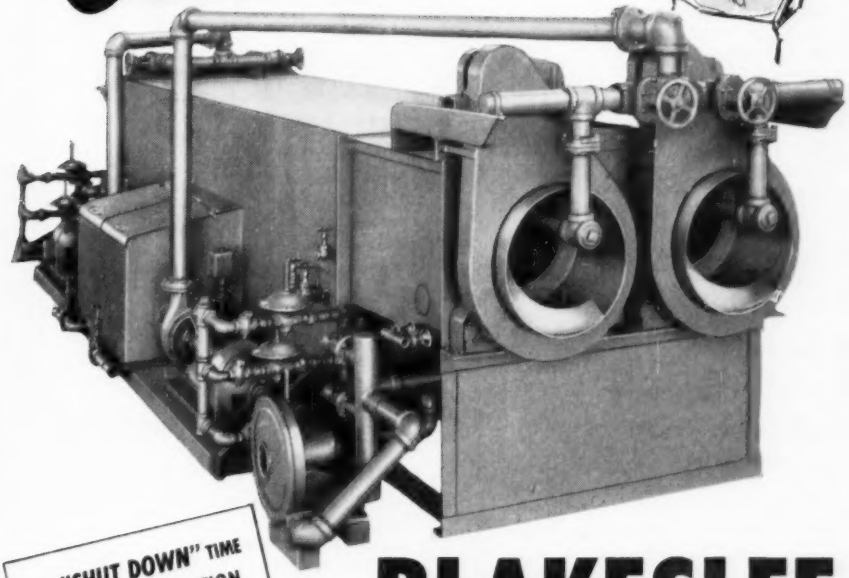

**LESS "SHUT DOWN" TIME SPEEDS UP PRODUCTION**

Shutdowns are a dead loss that can never be made up. That's why manufacturers throughout the world depend on Blakeslee for uninterrupted performance.

# BLAKESLEE

## METAL PARTS WASHERS...

are built to last...Give real economy in production. Many are still in use after 35 years of efficient service. Write for complete information on BLAKESLEE metal washing and surface treatment machines.

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NEW YORK • LOS ANGELES • TORONTO
*also Manufacturers of Blakeslee Solvent Vapor Degreasers and Blakeslee Degreasing Solvent*

For more data circle **238** on Reader Service Card

# August Advertisers' Index


Abbott Ball Co. ..... 28
Acme Mfg. Co. ..... 12
Agate Lacquer Mfg. Co., Inc. ..... 151
Allied Research Products, Inc. ..... 81
Armstrong & White ..... 32
Atlas Powder Co., Chemicals Div. ..... 123

Bacon Felt Co. ..... 104
Balcrank, Inc. ..... 11
Bede Products Corp. ..... 65
Behr-Manning, Div. of Norton Co. ..... 13
Better Finishes & Coatings, Inc. ..... 33
Bison Corp. ..... 118
Black Mfg. Co. ..... 86
Blakeslee & Co., G. S. ..... 159
Bond Chemical Products Co. ..... 133
Brady Co., W. H. ..... 66
Buckingham Products Co. ..... 97

Carborundum Co. ..... 32-B,-C
Ceilcote Co., Inc. ..... 90
Chicago Rubber Co., Inc. ..... 59
Churchill Co., Geo. R. ..... 131
Cincinnati Screen Process Supplies, Inc. ..130
Cleveland Process Co. ..... 58
Cohn Mfg. Co., Sigmund ..... 108
Cowles Chemical Co. ..... 14, 88
Cratex Mfg. Co. ..... 121

Day & Co., James B. ..... 100
Despatch Oven Co. ..... 63
Detrex Chemical Industries, Inc. .Fourth Cover
Detro Mfg. & Sales Co., Inc. ..... 134
DeVilbiss Co. ..... 82, 83
Dow Chemical Co. ..... 57
Dow Corning Corp. ..... 10
du Pont de Nemours & Co., E. I.,
Electrochemicals Dept. ..... 99
Duralac Chemical Corp. ..... 92

Finger Lakes Chemical Co., Inc. ..... 110
Firestone Plastics Co. ..... 34, 35
Formax Mfg. Co. ..... 125
Fostoria Pressed Steel Corp. ..... 91

Glidden Co. ..... 48, 49
Glo-Quartz Electric Heater Co., Inc. ..... 105
Guard Coatings, Inc. ..... 135

Hammond Mchry. Builders, Inc. ..... 7, 107
Hanson-Van Winkle-Munning Co. ..... 3
Harshaw Chemical Co. ..... 79
Hartford Steel Ball Co. ..... 60
Haveg Industries, Inc. ..... 6
Hercules Powder Co. ..... 77
Holland & Sons, Inc., J. ..... 101

Industrial Systems Co. ..... 114
International Chemical Co. ..... 87
International Nickel Co. ..... 29
International Rustproof Corp. ..... 106

Kirk & Blum Mfg. Co. ..... 93
Klem Chemicals, Inc. ..... 119
Koch Sons, Inc., Geo. ..... 117
Kushner Electroplating School ..... 44

Lanly Co. ..... 67
Lasalco, Inc. ..... 113
Lea Mfg. Co. ..... Second Cover

Mahon Co., R. C. ..... 54, 55
Metal & Thermit Corp. ..... 126
Michigan Chrome & Chemical Co. ..... 127
Mitchell-Bradford Chemical Co. ..... 8
Morse Mfg. Co., Inc. ..... 66
Murray-Way Corp. ..... 115

Newcomb-Detroit Co., Inc. ..... 102
Nikolas & Co., Inc., G. J. ..... 111

Oakite Products, Inc. ..... 1

Packer Machine Co. ..... 103
Pangborn Corp. ..... 45
Pennsylvania Salt Mfg. Co. ..... 61
Pioneer Rubber Co. ..... 96
Promat Div., Poor & Co. ..... 73

Ramco Equipment Corp. ..... 98
Ransburg Electro-Coating Corp. ..... 2
Ransohoff, Inc. ..... 9
Rapid Electric Co. ..... 132
Redi-Strip Co. ..... 134
Research Products Corp. ..... 116, 133
Richards-Wilcox Mfg. Co. ..... 71
Rockwell Co., W. S. ..... 135

Scientific Electric ..... Third Cover
Sel-Rex Precious Metals, Inc. ..... 95
Sethco Mfg. Co. ..... 44
Shell Chemical Corp. ..... 53
Sly Mfg. Co., W. W. ..... 109
Solvents & Chemicals Group ..... 4
Speed-D-Burr Corp. ..... 94
Spee-Flo Sales Corp. ..... 120
Stevens, Inc., Frederic B. ..... 32-D
Stutz Mfg. Co., Geo. A. ..... 131
Sulphur Products Co. ..... 132
Swift & Co. ..... 129
Sylvania Electric Products, Inc. ..... 32-A

True Brite Chemical Products Co. ..... 114

Udylite Corp. ..... 46, 47
Unit Process Assemblies, Inc. ..... 124
Universal Tumbling Supply Co. ..... 106

Varnish Products Co. ..... 122

Wyandotte Chemicals Corp. ..... 75

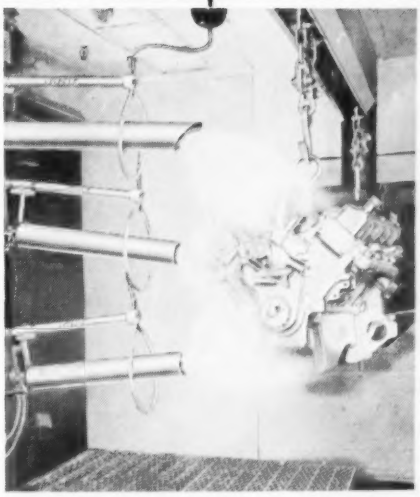



For more data on advertisement on opposite page circle **239** on Reader Service Card ——→

# "IONIC" ELECTROSTATIC SPRAY EQUIPMENT

by Scientific Electric

now in use at CHRYSLER



Patent Nos. 2,710,773
530 558
Other patents applied for

Scientific Electric's "Ionic" Spray System is being used at Chrysler Corporation's new Plymouth "Qualimatic" Engine Plant in Detroit, to apply highly conductive aluminum paint to their automotive engines.

As used by many leading manufacturers, the "Ionic" high potential Electrostatic System provides a highly accelerated rate of finishing with substantial paint savings.

Whether your needs are extensive, or for every day small production, Scientific Electric can assist you. Technical consultation and free demonstration given upon request.

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- No Royalties
- Low Capital Investment
- Minimum Paint Consumption
- No Rentals
- Higher Product Quality

Scientific Electric

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Designers and Manufacturers of High Frequency and High Voltage Equipment Since 1921
Induction and Dielectric Heaters – High Voltage Power Supplies – Spot Welders

# CHOP

## Your Metal Cleaning Dollars ..with DETREX CLEANERS

Detrex alkaline and emulsion cleaners possess extraordinary properties for the removal of soil from metal and the prevention of rust. Increased efficiency and worthwhile savings can be obtained by calling on skilled Detrex service personnel to keep your metal cleaning operations at peak efficiency.

Whether you are considering a completely new cleaning operation or are interested in improved efficiency of your present operation . . . you can rely on Detrex to cut your metal cleaning costs.

Dept. A-508

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BOX 501, DETROIT 32, MICHIGAN

DEGREASERS • DEGREASING SOLVENTS • WASHERS • ALKALI AND EMULSION CLEANERS • PHOSPHATE COATING PROCESSES

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